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## Original Communications.

### *NOTE ON THE LOCAL ACTION OF TETANUS TOXIN: WITH A SUGGESTION AS TO ITS THERAPEUTIC EMPLOYMENT.*

BY R. L. PITFIELD, M.D.,
Philadelphia.

In experimental tetanus induced in animals either by inoculation with tetanus pus, cultures, or toxin, it is well known that the parts nearest the site of inoculation become affected first. It is generally thought that the action of the toxin is upon the cord; the higher cerebral centres are never directly affected. No post-mortem lesion has been discoverable in the cord in tetanus until recently, when, in common with other poisons, Marenesco (*Compt. Rend. Biologie*, July 4, 1896) describes softening of the gray matter found in animals killed by tetanus.

The action of the poison has been compared to that of strychnine; like it, it is no doubt a direct irritant to the cord. There is also marked local action, at least in experimental tetanus.

To study this, four healthy guinea pigs were each inoculated in a different leg, two with pus and two with toxin. In each animal spasms began in the injected limb, creeping to its opposite fellow and finally killing

the animal in general convulsions. The injection of the poison is painful, much more so than the injection of diphtheria toxin; it seems to be a direct irritant to the sensory as well as motor filaments of the nerves.

Clinically the typical attack of tetanus begins in the muscles of the jaws and face, even if the lesion be remote—say in the foot. In the case related by Welch in Dennis' "System of Surgery," vol. i, a bacteriologist named Nicolar, having accidentally pricked his left hand with a hypodermic needle moistened with tetanus toxin, was seized with a violent attack of tetanus; the contractures began after three and a half days in the left thumb, spreading to the hand and arm. Trismus, opisthotonos, general contractures and convulsions followed, and at the end of forty-one days the patient recovered. It will be seen that trismus did not occur until after local contractures had spread up the arm, showing that the action was first local, acting upon the nerve-endings, finally upon the higher cord, and thence descending.

Not knowing of Nicolar's experience, I injected one cubic centimeter of a much less virulent toxin into the calf of my left leg. The toxin was virulent to a degree, however; the same dose four days previously had killed a 455-gramme guinea-pig in forty-eight hours. The injection was more irritating than an ordinary hypodermic injection, and the parts became rapidly more and more painful. An hour afterwards my leg hurt considerably, there was no increase in any reflexes, and my temperature had risen one degree above normal. I had a headache and felt giddy. Two hours after injection the temperature fell to normal, but the pain became intense; there was spasm of the fibres of the muscles, which became greatly aggravated with use. The only manifestation of the poison was local, but it was most severe and lasted twelve hours.

It has been suggested that the filtrate of tetanus cultures is really not a poison but a creator of toxic substances in the body, by reason of a supposed enzymic action.

It may be that trismus and general manifestations of tetanus are reflexes depending upon an irritation of the terminal filaments of sensory nerves, while the local action is upon the motor nerve terminations. No pain other than inflammatory is noticed in an infecting wound in clinical tetanus.

Toxin can be recovered from the urine in cases of tetanus, showing that it circulates freely. Most of the toxin remains in the tissues near the wound; sufficient to kill escapes, however, since excision of an infecting wound one hour after it is made will not save the animal (Kitasato).

If the action of large doses is sufficient to cause softening of the cord, the toxin in small amounts might have a specific stimulating effect upon the cells of a cord undergoing degenerative changes, especially with atrophic manifestations in the muscles. With this in view, at intervals of a few days I administered small but increasing doses of a mildly virulent toxin to a man with mixed sclerosis of the cord. The first dose, .02 cubic centimeter, was followed by a slight rise of temperature. This was true of the second, third, and fourth doses; the latter, two cubic centimeters, caused no local reaction, but a marked exaggeration of already abnormally increased reflexes. Ankle clonus, previously hard to elicit, was easily produced, with strong contractions. Unfortunately, while I was developing some stronger toxin, the patient left the hospital feeling better and claiming to have been benefited.

Such treatment might be of use in subacute or chronic myelitis, especially in children. In case of accident the antitoxin can be used. The patients, of course, would gradually become immune to the poison.

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## *THE HISTORY AND TREATMENT OF AN INTERESTING CASE OF OVARIAN AND UTERINE NEOPLASMS.*

By Alfred G. Dale, M.S., M.D.,
Attending Surgeon Iola Hospital, Iola, Wisconsin.

This paper is the outgrowth of many requests from different practitioners who have indirectly heard of the case in question and desire a more accurate account of what one called a "pathological museum."

It is not entirely the pathology in this case that excites the interest, but the size and disposition of the morbid growths are responsible as much as any other factor for the demand for the history and subsequent radical measures instituted for their relief. The case represents one of those exaggerated pathological conditions seen by our surgeons, manifesting the most advanced types of benign neoplastic life.

The patient, a German lady, forty-six years of age, was admitted to the hospital eight months ago, and gave the following history: She had never had any children, and prior to four years ago always considered herself a ro-

bust, healthy specimen of her race. During the enjoyment of absolute health she was suddenly taken, about four years ago, with menorrhagia, which continued with intermissions and exacerbations over a period of twelve months, at the expiration of which time she was so completely exhausted, so nearly exsanguinated, that she was compelled to keep the recumbent position for two or three months, an abject, bedridden invalid. When she finally regained strength and again assumed charge of her household duties, she began to experience moderate pain at the site of the uterus, and discovered a tumor in that locality. Not long thereafter her family physician discovered a second tumor on the right side, then shortly a third on the left side. He recommended a radical operation at the time, but the patient postponed radical measures and followed simply expectant treatment. The growths gradually increased in size, attended by a corresponding increase and exaggeration of all concomitant symptoms incident to the development of intra-abdominal tumors; especially prominent among these were dyspnea and severe pressure-symptoms with extreme vesical irritation and tenesmus, edema of the lower limbs, varicose enlargements of the legs, hemorrhoidal veins, and disorders of digestion.

When the patient entered the hospital the growths had reached enormous proportions, the abdomen was exceedingly distended and severely tense and resisting even to the ensiform cartilage. The recumbent position was no longer possible, and the patient suffered from frequent recurring attacks of syncope and painful traction symptoms due to adhesions.

Prior to the operation her bowels were unloaded completely by large doses of compound licorice powder and warm enemata; the whole body was subjected to two thorough hot baths followed by brisk friction; the vagina was sterilized, and all necessary external antiseptic precautions instituted incident to a laparotomy. Upon opening the peritoneal cavity an enormous pedunculated unilocular ovarian cyst was confronted, springing from the right ovary; it occupied the whole available abdominal space, extending from the diaphragm to the floor of the pelvis. After drawing off the cystic fluid, it was necessary to enlarge the abdominal opening to ten inches in length in order to bring the sac through the incision; and after loosening some adhesions between it and a few loops of the small intestines, right oophorectomy then removed its attachment. In examining the left ovary it was found to be sclerotic and to give rise to four well defined and separate multilocular cysts ranging in size from that of a hen's egg to that of a hickory nut. Two of them were simple, one was a proliferating cyst, and the fourth exhibited very active pathological changes with glandular masses, representing a true cysto-adenoma. Here, as on the right side, the deep excision of the ovary sufficed for their removal. An examination of the uterus showed this organ also invaded by a neoplasm about the size of a large fetal head. It was deemed advisable to stop at nothing short of a complete supravaginal hysterectomy. Firm adhesions existed between the uterus and bladder; these were carefully separated. The work was much facilitated by elevating the pelvis as in Trendelenburg's position. After the tumor and uterus were disengaged and delivered, the broad ligaments were treated as lateral pedicles and tied off with double silk ligatures in mass successively, and severed between the rows. Having carried the double ligation and separation down to where a narrow mass of uterine tissue remained, which consisted only of the cervical portion of the uterus, the pedicle was constricted by a strong elastic cord of six millimeters in diameter. The whole uterus with its tumor was then cut away at a safe distance from the constrictor, and the abdominal cavity flushed out with a normal salt solution (6:1000), 110° F. After touching the pedicle with a pledget of cotton, soaked in a saturated solution of chloride of zinc, the anterior and posterior surfaces were approximated by a row of deep interrupted silk sutures, followed by a row of superficial uninterrupted silk sutures, and the constrictor removed. One end of a large iodoform gauze tampon was placed against the uterine stump and the other end brought out of the lower angle of the wound. The abdominal wound was sutured in the usual manner, over which was placed an abundant sterilized absorbent dressing.

Under closer inspection, verified by a microscopical examination, the uterine tumor was found to be an intra-mural fibromyomata. The tenacious mucoid fluid drawn off from the large cyst was preserved, and measured 18.08 litres (four gallons). The uterine fibroma, the four smaller ovarian cysts, the fluid and sac of the large cyst, were all weighed, and aggregated fifty-six pounds.

The patient evinced severe symptoms of

shock for the first twenty-four hours. Artificial heat was supplied by the judicious use of hot-water bottles and the internal medication every fifteen minutes of two grammes of brandy, and 0.6 gramme of tincture digitalis and 0.002 gramme of sulphate strychnine were administered hypodermically every alternate hour until reaction was well established.

The gauze tampon drainage was removed on the fourth day and the abdominal wound redressed. The patient left the hospital in five weeks, and when last heard of she reported an absolute uneventful recovery.

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## *ANTISEPTIC DRESSING OF THE GENITAL TRACT AFTER OPERATIVE DELIVERY.*

By Edward P. Davis, A.M., M.D.,

Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic; Clinical Professor of Obstetrics in the Jefferson Medical College, and Medical Director of the Jefferson Maternity; Visiting Obstetrician to the Philadelphia Hospital, etc.

Artificial or operative delivery is accomplished without injury to the patient by following the same rules which govern active interference in surgical procedures. In many labors the seat of operation, the genital tract, is in an aseptic condition when interference is undertaken; the hands and instruments of the obstetrician are sterilized, as are those of the surgeon, and it remains for the former to leave the tissue operated upon protected by a suitable antiseptic dressing.

After most instrumental deliveries, wounded tissue is found in three portions of the genital tract: The pelvic floor and perineum are often lacerated, and such tears require dressing, although they may be slight in extent; the cervix uteri is frequently more or less lacerated, and such wounds may readily become infected; the site of the placental attachment within the uterus may also readily absorb septic poison. It is the duty of the obstetrician after labor to leave, if possible, the entire genital tract of the patient in an aseptic condition, and protected from the invasion of septic poison; in other words, wounds in the genital tract should be closed and antiseptically dressed just as much as those in the abdominal cavity, or in other regions of the body.

After normal labor in a healthy woman, the wounds already enumerated are but slight in the cervix and pelvic floor; they are cleansed by the amniotic liquid and blood-serum of the lochia, and unless the parts are infected at labor, they are after labor in an aseptic condition. If an occlusion antiseptic dressing be placed over the vulva of such a patient, if this dressing be renewed as often as indicated, and the external parts thoroughly cleansed, no direct application is needed for the minor tears after normal labors. When, however, considerable lacerations are present, and especially in young, ill-developed, anemic women whose poor condition favors infection, an antiseptic dressing is urgently required. In choosing such material, it must be capable of exerting gentle pressure, and also of furnishing capillary drainage; antiseptic gauze fulfils this purpose in obstetric practice quite as well as after vaginal hysterectomy.

While some have cast doubts upon the virtues of iodoform as an antiseptic, still the majority of operators are content to use this material within the abdomen or in the uterus. Others prefer, for intra-uterine packing, bichloride gauze 1:2000; either of these materials is now put up by manufacturers in small glass bottles, hermetically sealed, containing sufficient to tampon the uterus and vagina after labor. Such a bottle should not be opened until its contents are required, when the gauze can be taken directly from the bottle and inserted in the body of the patient.

The immediate result of the presence of the gauze within the uterus is to stimulate uterine contractions, and to prevent the formation of a clot of considerable size. The lochial discharge is serous only, but little hemorrhage occurring. In cases thoroughly cared for under antiseptic precautions, the lochia is always serous and endures for a shorter time than in cases not treated in this way.

The reader must distinctly understand that the use of gauze dressings within the uterus and vagina after labor is not proposed after normal labor; it is, however, practiced and commended after cases where birth occurs by operative interference, or where uterine relaxation and hemorrhage are threatened.

In conducting operative cases the physician must prepare to deal with laceration of the genital tract. While the patient is being anesthetized the operator should prepare his forceps, needles, needle-holder, hemostatic forceps, scissors, and suture material, and a pair of curved uterine dressing-forceps for introducing the gauze. While several instruments have been invented for this purpose, they are not superior to a pair of slender

dressing-forceps, which should be perfectly smooth at the ends which grasp the gauze; the serrations usually found on such forceps are very inconvenient, as they tend to pull back the gauze when the operator has introduced it.

The patient being anesthetized, the delivery is accomplished by either version or forceps, or by embryotomy. The patient may then be allowed to come partly from the influence of the anesthetic, when the placenta is expressed with the aid of the patient; or, if haste is imperative, the placenta is removed by Crédé's method without allowing the patient to regain consciousness. The uterus is thoroughly explored with the aseptic hand to be sure that all portions of placenta and membranes have been removed; it is then thoroughly douched with bichloride solution 1:8000, or creolin two per cent., at a temperature of 110° F. While the hand of an assistant or nurse rests upon the uterus above the pubes, the operator introduces several fingers of the left hand within the vagina and below the cervix to act as a guide; the end of the gauze is then taken by the dressing-forceps, and gently carried to the fundus of the uterus; the womb is moderately filled with gauze, the end of which is left protruding from the internal os. The hand of the operator is then removed, and the lips of the cervix are grasped in the centre by hemostatic or tenaculum forceps, and the cervix drawn gently downward until a thorough examination can be made of each lip. If lacerations are present, they are closed with chromicized catgut, or with soft silk of large size. The uterus is then anteverted, and the pelvic floor, if lacerated, is repaired; also the perineum, if needed. When lacerations have been closed, the vagina may again be douched with bichloride 1:8000, the cervix carried backward, the fundus being placed forward against the pubes, and the vagina moderately distended with bichloride gauze. If shock or relaxation of the uterus be present, strychnine is given, one-fifteenth to one-twentieth of a grain, hypodermically; the external parts are thoroughly cleansed with bichloride solution; the patient may be catheterized to advantage, and an occlusion bichloride dressing be placed over the vulva and retained by a T-bandage, or fastened to the lower edge of the abdominal binder. The gauze dressing is left in place thirty-six to forty-eight hours, the patient being catheterized meanwhile at regular intervals, and strict care taken that the external parts are thoroughly cleansed with bichloride solution 1:2000 before and after the emptying of the bladder or of the bowel.

To remove the gauze, the patient should be placed upon her back across a bed, her feet on chairs, while the operator inserts one or two fingers of the aseptic hand, passing them along the anterior vaginal wall to avoid contact with stitches in the pelvic floor. The gauze is gently extracted with dressing-forceps, and the uterus thoroughly douched with bichloride solution 1:8000, or creolin. A copious douche should be given, until the water returns perfectly clear. After the removal of the gauze, and the douche, an external occlusion dressing only is needed, and the case becomes one of the ordinary puerperal state. Such patients, however, are rarely annoyed by the formation of clots within the uterus, while the lochia continues serous and ceases sooner than in cases in which the gauze is not employed. Should a rise of temperature above 100° occur, the uterus should be again thoroughly douched, when the temperature will usually rapidly fall.

The writer's case-books show abundant evidence of the practical value of this method of treatment. It is rare for these patients to have any complication, while complicated deliveries make a more speedy and uninterrupted recovery. He has never had occasion to introduce gauze a second time in the same patient, and has often removed the gauze as early as thirty-six hours after delivery, without complication. In cases where previous infection was present, in the form of syphilis or gonorrhea, such patients have been unusually free from offensive lochia during the puerperal period.

The following cases may indicate those in which this method of treatment may be used to advantage:

CASE I. — Primipara; normal pelvis; delayed labor through resistance of the cervix. Dilatation by McLean's bag, followed by partial engagement; ether anesthesia; Walcher's position and extraction with forceps; cervix and pelvic floor closed by suture; gauze packing of uterus and vagina. On removing the gauze forty-eight hours after its insertion, a small piece of placental tissue was found adhering thereto. Patient made an uninterrupted recovery from labor.

CASE II. — Multipara; death of fetus at seven months from anemia of the mother; spontaneous labor; adherent placenta. Chloroform anesthesia; the uterus curetted with

the blunt douche-curette, and packed with iodoform gauze; the vagina tamponed with sterile gauze. Uninterrupted recovery of the mother, her highest puerperal temperature being 99⅘°.

CASE III.—Young anemic primipara; prolonged labor; rupture of the membranes; episiotomy; delivery by forceps; gauze packing of uterus and vagina. The patient made an uninterrupted puerperal recovery.

CASE IV.—Multipara; very anemic; formerly resided in Cuba; suffered for several weeks from obstinate pain in the left sacro-iliac joint; normal pelvis. Labor induced on account of mother's weak condition. Cervix excessively thick, requiring dilatation with McLean's bag; forceps delivery; removal of adherent placenta; laceration of one side of cervix, sutured with catgut; gauze packing of uterus and vagina. Patient recovered well from puerperal period, and transferred to orthopedic ward for treatment of the pelvic joint.

CASE V.—Primipara; weak and anemic; prolonged labor from uterine inertia. Slow rotation of the occiput; dilatation by McLean's bag; forceps delivery; tamponing of uterus and vagina with gauze. Highest puerperal temperature 100°. Uninterrupted puerperal recovery.

CASE VI.—Primipara, aged forty; prolonged labor from uterine inertia at term; pelvis normal. Extraction with forceps under ether; tamponing of uterus and vagina with gauze; slight laceration of cervix and pelvic floor, closed by suture. Uninterrupted recovery.

CASE VII.—Multipara, brought by ambulance from a tenement house where she had been in labor several days; child in transverse position, arm prolapsed, and beginning gangrene of the arm; uterus in tetanic contraction, threatened rupture; patient greatly exhausted; fetus wedged in the pelvis, so that version was impossible. Embryotomy; amputation of the arm at the shoulder, breaking up the wedge and permitting version; delivery accompanied by severe hemorrhage; tamponing of uterus and vagina with gauze. Following the removal of the gauze, the patient had a single rise of temperature from sapremia, which yielded promptly to a copious irrigation of the uterus; subsequent recovery uncomplicated.

CASE VIII.—Multipara, brought in by ambulance during an abortion; hemorrhage and slow dilatation; fetal limb presenting. Dilatation completed with Barnes' bag; fetus and appendages removed with finger, and uterus douched with curette; packing of uterus and vagina with gauze. Beyond a brief rise of temperature from sapremia, patient's recovery uncomplicated.

CASE IX.—Young primipara; normal pelvis; suffering from polyhydramnios, with rapid increase in the amniotic fluid; general anasarca present, and abdominal pressure so great as to prevent sleep and cause great suffering; uterine distention excessive; os dilated, but uterine contractions absent. Rupture of the membranes, followed by slow delivery, with careful and prolonged counter-pressure upon the abdomen; excessive discharge of amniotic liquid, with feeble uterine contractions; after delivery, tamponing of the uterus and vagina with gauze, with the application of many-tailed abdominal bandage. Patient made an uninterrupted recovery.

CASE X.—Primipara; flat rachitic pelvis. Induced labor; symphyseotomy; extraction, with forceps, of living child; tamponing of uterus and vagina with gauze, which remained forty-eight hours. No post-partum hemorrhage, or relaxation of the uterus. Patient made a good recovery.

CASE XI.—Primipara; justo-minor pelvis of slight contraction; rupture of perineum in median line; suture; tamponing of uterus and vagina with gauze. Uninterrupted puerperal recovery.

CASE XII.—Multipara, who had lost her first child by birth-pressure from forceps extraction. Induction of labor at thirty-fourth week to avoid excessive size of fetus; artificial dilatation with McLean's bag; extraction with forceps; manual removal of the placenta; gauze packing of uterus and vagina; gauze removed in thirty-six hours. Uninterrupted puerperal recovery; child, a male, weighing nine pounds; diameter of head from one to two centimeters in excess of the average.

CASE XIII.—Multipara; seen in consultation with Dr. Thomas Betts and Dr. E. L. Klopp, of Oak Lane, Philadelphia; flattened pelvis; first child died of birth-pressure following forceps extraction; patient without a trained nurse, and with limited appliances for aseptic precautions; two attempts had been made to deliver with forceps. Anesthesia with ether; patient placed upon a table in Walcher's position; extraction of living child with axis-traction forceps; removal of the placenta; thorough douching of the uterus; closure of cervix and of slight tear in pelvic floor with silk; uterus packed with iodoform

gauze, and vagina with bichloride gauze. Dr. Betts removed the gauze forty-eight hours afterward, finding a few small, soft clots adherent to the gauze, and a serous discharge only; patient's highest temperature 100°; mother and child made good recovery.

While many of these cases have been delivered in the Jefferson Maternity with all the advantages of good nursing and abundant assistance, still Cases XIII and XIV illustrate the advantages of this method in private houses. In Case XIII, an excellent trained nurse and the writer's personal assistant were present; the patient had every advantage which thorough asepsis and abundant private resources could give. In Case XIV, the patient's limited means deprived her of many advantages in her own home, and her husband would not permit her to go to a hospital. It is in such cases, especially where it is difficult to maintain a thoroughly aseptic condition of the patient after delivery, that the employment of this procedure will be found especially advantageous. It is true that to be theoretically accurate, all samples of gauze should be tested by bacteriological examination before the operator introduces them within the uterus; this, however, is not practicable in most cases, and good results are obtained with the employment of strict cleanliness, thorough douching with dilute antiseptic solutions, and care that the gauze is conveyed directly from its case to the uterus of the patient, and is not opened or touched before its introduction. We have yet to observe any complication which we have been able to trace to this procedure.

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## *ECTOPIC GESTATION: A REPORT OF OPERATIVE CASES; WHEN TO OPERATE; POINTS IN TECHNIQUE.*

By J. Coplin Stinson, M.D.,
San Francisco, Cal.

During the past few years much has been written on this subject. A review of the several methods of treatment shows that the mortality is lowest in those cases in which early operation is employed. In deciding on an operation for ectopic gestation the question arises, When and how shall we operate? I am of the opinion that if the diagnosis is made before rupture has occurred, operation should be made through abdominal incision as soon as arrangements can be made. With careful antiseptic and aseptic precautions, provided the operator is familiar with the special anatomical conditions associated, an abdominal operation has in itself a mortality at or about *nil.*

We can never tell when rupture is going to take place; it may occur after our visit, perhaps not for a week, or after the lapse of months. We can guess as to the probable time of rupture, and that is the best we can do.

If we are called in after rupture has occurred, what is the best plan to follow? I would say operate as soon as possible. If the patient is collapsed, do not waste time waiting for reaction, for frequently, the hemorrhage continuing, reaction does not occur, and the patient is lost. When rupture occurs there should be no delay. The patient should not be removed from the house, but preparations should be made at once, and the operation performed under antiseptic and aseptic precautions as quickly as it can be done with accuracy. While the preparations are being made, if the patient's pulse is failing, hypodermics of digitalis, camphor, strychnine, etc., and intravenous or subcutaneous injections of sterilized salt solution at about 105° F., should be administered. We can only save the patient by arresting the hemorrhage, and the quickest and safest way is to cut down, clamp and tie the bleeding vessel. If the patient is under the care of a medical man no time should be wasted, but a surgeon should be called in to operate at once, so as to give the patient every chance for her life. We may use palliative, plastic and conservative methods in most conditions of the appendages, but we must be prompt, radical, and scientific in our operations for ectopic gestation.

In looking over my list of ectopic cases in which I performed or assisted in an operation while house surgeon at the New York Post-Graduate Medical School and Hospital, and since I left that institution, I find they number six. There was one other case not operated upon, the history of which I shall also include in my paper. Of these cases one was unruptured, six ruptured.

Case I.—Unruptured; period of gestation, between two and three months. A three-inch median incision was made above the pubes, and the peritoneum was opened; the ovary and tubal mass were brought to the surface and removed; the pedicle was transfixed and tied off; abdomen was closed in separate layers with catgut sutures; silkworm-gut for the skin; no drainage. Recovery satisfactory.

CASE II.—Ruptured; near the third month of gestation. About three weeks previous to the operation there was a slight hemorrhage. Examination showed a moderately adherent mass, size of an orange, on one side of the uterus. A median incision four inches long was made above the pubes; on opening the peritoneum the mass was found moderately adherent in the pelvis; the adhesions were separated, ovary and tubal mass removed, pedicle transfixed and ligated, and abdomen closed without drainage. The tubal mass showed signs of the recent rupture. The peritoneum and fascia were sutured separately with catgut; interrupted silkworm-gut sutures were also used through all the structures of the abdominal wall except the peritoneum. Convalescence was delayed by an abscess which formed in the line of one of the worm-gut sutures; the abscess was incised. Otherwise recovery was satisfactory.

CASE III.—Period of gestation, between the second and third months; the rupture occurred on a Sunday morning. The patient was operated upon the afternoon of the same day. The abdomen was opened in the median line above the pubes by a four-inch incision; on opening the peritoneum the cavity was found to contain some large clots; the clots, ruptured tube and ovary were removed; the pedicle was transfixed and tied off; the abdomen flushed out with hot water; the peritoneum was closed with catgut, and the other layers were approximated by a single layer of interrupted worm-gut sutures. No drainage was used. There was some shock after the operation, but reaction was good. Wound healed by primary union; recovery uneventful.

CASE IV.—Period of gestation, about the third month; the rupture had occurred two days previous to entrance to the hospital. When admitted the patient was in a critical condition; pulse 135, temperature 102°; abdomen tympanic and markedly tender, especially the lower part, which was occupied by an ill-defined tumor mass; cervix enlarged and patulous; some bloody discharge; uterus enlarged about size of the second month of pregnancy. The mass could not be clearly defined by bimanual examination, but was traced downward into the pelvis. In one cornua of the uterus was an irregularly shaped mass, the size of a large orange. Operation was performed under ether. On opening the abdomen, the ill-defined mass was found to consist of large, partly organized blood-clots. The cavity also contained some blood-stained serous fluid; there was evidence of peritonitis in the pelvis. The clots and serum were removed, adhesions separated, and the uterus and the mass in one uterine cornu were outlined; the ruptured ectopic mass was located at the tubo-uterine junction; the cornu was dilated, torn, and occupied by a portion of the mass about the size of an orange. The adhesions were separated, and the mass, including the ovary, was tied off close to the uterus and removed. The other tube was found enlarged and distended with fluid, and was also removed. The adhesions behind the uterus were separated and an incision made through the cul-de-sac into the vagina; abdomen was flushed out with hot water; iodoform gauze packing introduced into the pelvis from above, and the ends drawn down into the vagina. The abdominal incision was sutured in separate layers with catgut, using also interrupted worm-gut through all the layers of the abdominal wall except the peritoneum; no drainage was employed through abdominal wound; aristol dusted on wound and dressing applied. When patient was returned to bed, condition was poor; pulse 160. She was given stimulating enemata at two-hour intervals, and hypodermics of strychnine, $\frac{1}{60}$ grain, and whiskey every hour for several doses. After vomiting ceased the patient was given one-half a Seidlitz powder in hot water every half-hour till four powders were taken. The vaginal drainage was good for several hours; the gauze was drawn down about every two hours; drainage was slight eight hours after the operation. Introduction of catheter into the bladder twelve hours after the operation showed but little urine. Vomiting set in; temperature gradually rose to 104°; abdomen became distended; kidneys stopped secreting; and the patient died. Temperature before death, 104½°.

Autopsy showed peritonitis and acute nephritis. This patient, I think, would have had a better chance for recovery if chloroform had been the anesthetic used instead of ether, and if the abdomen had also been drained from above through the lower angle of abdominal incision by two or three moist gauze wicks.

CASE V.—Rupture had occurred between the third and fourth months of gestation, and the fetal mass was discharging into the rectum. Operation was performed under ether. Patient was placed in the lithotomy position and the fetal mass, in a foul condition, was extracted piecemeal; the cavity was then washed out with hot salt solution, and a

gauze wick introduced for drainage. The cavity gradually filled up, and recovery was uneventful.

CASE VI.—The patient had a rupture when she was about two months pregnant, and made a good recovery. When she was admitted to the hospital the pregnancy was between the third and fourth months; patient's general condition was good. Examination showed the cervix slightly enlarged and patulous; on one side of the pelvis near the cornua was a large tumor mass, slightly adherent in the pelvis. The patient was to be operated upon the following morning before the class of Post-Graduate students. At 7.30 P.M. she was shaved and antiseptically prepared; about 9 P.M. I was called to see her. I hurried to the ward and found her pale and collapsed. Examination of the abdomen showed the lower portion tender to the touch; palpation elicited a boggy feeling. The patient was given hypodermics of morphine, strychnine, and digitalis, and preparations were made for operation. She began to vomit and died in a few minutes, before operation was performed.

The autopsy showed the abdomen to be nearly full of blood; there were evidences of the old and recent ruptures; the recent one had taken place into the peritoneal cavity; the tube was markedly enlarged and moderately adherent in the pelvis, and near to and attached by the cord to the ruptured tube was a fetus of about four months.

CASE VII.—Ruptured ectopic gestation, local peritonitis, hydrosalpinx. The patient was admitted to the hospital in a critical condition; she had considered herself between the third and fourth months of pregnancy. A week before entrance to the hospital abortion had been attempted; this produced pain and hemorrhage; for the latter vinegar was injected, and this increased the severity of the pain, which extended from the pelvis into the lower part of the abdomen. She suffered intense pain for three days previous to admission to the hospital.

Examination: General condition poor; pulse 140; temperature 102°; abdomen tympanitic and markedly tender, especially over lower half, on the right side of which an ill-defined tumor could be mapped out; the cervix was enlarged and patulous; the mass felt through abdomen could be traced downward into the cul-de-sac; on the left side, close to the uterine cornu, was an oval mass the size of a large orange.

Operation was performed as soon as the operating room was ready; anesthetic, ether. Patient was shaved and antiseptically prepared. A median incision four inches long was made below the umbilicus, and the peritoneum opened. The mass felt through the abdomen consisted of large clots of blood, and the cavity contained some blood-stained serous fluid. The clots and serum were removed, adhesions separated, and the oval mass to the left of the uterus outlined. This consisted of fetus and membranes, together with matted tube and ovary; these were removed, the pedicle being tied off close to the uterus. Examination of the right tube and ovary showed a hydrosalpinx the size of a sausage; this was removed along with the ovary, which was the seat of extensive cystic disease. The serous coat of the intestines, which was torn in several places while separating adhesions and removing clots, was sutured with fine silk; the adhesions behind the uterus were separated as far as possible; the abdomen was flushed out with hot saline solution; iodoform gauze strips were packed into the cul-de-sac through the abdominal incision; an iodoform gauze strip was carried down behind the uterus, and the end brought out through the lower angle of abdominal incision; the abdomen was closed in separate layers with catgut, leaving only sufficient room at the lower angle for the gauze strip; aristol was dusted on wound and the dressing applied. Patient was then placed on her side; cervix seized with vulsella and drawn down; an incision made behind the cervix into the cul-de-sac, and the ends of the iodoform gauze packing drawn down into the vagina. Patient was returned to the ward; condition poor; pulse 160. She was given stimulating enemata twice at two-hour intervals, and hypodermics of strychnine $\frac{1}{60}$ grain, caffeine 2 grains, and camphor 3 grains, every hour for four doses. Pulse at the end of four hours became fairly good. One hour after vomiting ceased, was given one Seidlitz powder in hot water every hour till four were taken. At the end of six hours she was given an enema of olive oil 4 ounces, Rochelle salts 4 ounces, enema 1½ pints. Bowels moved slightly eight hours after the operation. Highest temperature, 101½°. At the end of twelve hours patient had a severe chill; temperature rapidly rose to 106°; pulse 180. Drainage had been excellent for six hours after the operation from the abdominal wound, but poor through the vagina, on account of density of pelvic adhesions. Gauze on abdomen had been changed

as often as it was saturated—*i.e.*, about every hour and a half; the gauze through the cul-de-sac was drawn down about every two hours. Drainage was slight from the sixth hour after the operation up to the time the temperature began to rise, when the dressing on abdomen was removed, and wound was opened at the lower angle for about two inches; a soft rubber catheter was passed down into pelvis and about half an ounce of blood-stained fluid was withdrawn with a syringe. Another strip of gauze was introduced to the bottom of the wound and moist dressings reapplied. The patient was given one hypodermic Majendie solution of ten minims, and an enema twice of whiskey 4 ounces, quinine 20 grains, at two-hour intervals. In four hours the temperature dropped to 103°, and inside of two days was normal. While the patient was very weak, she was given an ounce of champagne every hour by the mouth; for two days after the operation she was given nutrient enemata of peptonized milk ½ pint, two eggs, and salt 2 drachms, every four hours, till the stomach could tolerate milk and Vichy in small quantities. On the seventh day she was ordered regular diet. The gauze in the cul-de-sac was removed twelve hours after the operation, and the abdominal drains on the third day, when a small strip was introduced. The wound filled up rapidly; cicatrization was complete six weeks after the operation. General condition good on the last report.

*Some Points in Technique.*—The abdominal incision need not be made longer than three inches, and after opening the peritoneum, if it be found necessary to enlarge the incision on account of extensive adhesions or the size of the mass, this can easily be done. Less time is taken and less injury is done by operating through a short incision, and later on the opening can be closed in less time and with fewer manipulations. In difficult cases the Trendelenburg position should be used, as it offers many advantages. If adhesions are present separate them by blunt dissection, aided at times when they are firm by cuts with the scalpel. Adhesions, unless they are very old and firm, always give way before the normal structures. When the adhesions to the intestines are old and firm they should be cut so as to leave a piece attached to the bowel; should the intestines be torn, grasp them at once, and close the rent or rents with two layers of continuous sero-muscular fine silk sutures. Bleeding from adhesions is best arrested by irrigation with hot water and pressure with hot gauze sponges. To prevent secondary adhesions all raw surfaces where it is possible should be whipped over by fine continuous catgut sutures. When sutures cannot be used secondary adhesion can be prevented by means of an aristol film, which acts mechanically and gives the raw surfaces an opportunity to heal separately. The aristol film will not form on the surfaces if any fluid washes away the aristol before it becomes fixed with the lymph; in from half a minute to a minute the film can be formed on a dried surface by exposure to the air. The ectopic mass should be removed by enucleation, using blunt dissection aided at times by cuts from the scalpel. The dissection should be carried as close as possible to the tubal mass; beginning the enucleation at the fimbriated extremity, work toward the uterine end of the tube. When the uterine cornu is reached, the serosa of the tube about a quarter of an inch from the tubo-uterine junction is divided in a circle and dissected back to the uterus; the tube is then cut off flush with the uterus, and the cut edges of serous coat which had been dissected back are united with a continuous catgut suture. If the ovary is irreparably damaged it is also removed by enucleation, using blunt dissection, aided at times by cuts with the scalpel; oozing is arrested by sponge-pressure. If any vessels are severed during the enucleation they are caught at once with forceps and ligated with fine catgut.

After the removal of appendage the cut edges of the broad ligament should be united with a fine continuous catgut suture. The tube and ovary of the other side should be examined, and if the ovary is cystic the latter should be evacuated, trimmed away, and the cut edges united with continuous catgut sutures. If the tube or ovary, or both, are irreparably damaged they should be removed by enucleation as described. If the uterus is in good position and not irreparably damaged, it should not be removed.

In those cases where the fetus has escaped from the tube or is not in the tube, the treatment should be the thorough removal of the fetus, placenta and membranes as soon as the diagnosis is made, no matter what the stage of the disease, removing the masses by enucleation, ligating only bleeding vessels, and arresting oozing by sponge-pressure and irrigation with hot water. If drainage is necessitated, one or more strips of moist gauze, surrounded by gutta-percha tissue with several holes snipped in the tissue

(Morris' capillary wick) answers best; the rubber tissue prevents the formation of adhesions between the serosa and the gauze. In an earlier paper on Appendicitis I reported fourteen cases in which Morris' capillary wick was used with every advantage where drainage was necessitated. In closing the wound each of the layers should be sutured separately and thus accurately with chromicized catgut or tendon sutures, using very fine silk for the skin; and if each of the divided layers is sutured separately with sterilized chromicized tendon or catgut, there would never be a post-operative hernia.

I advocate the removal of all such masses as ovarian cysts, tumors, abscesses, irreparably damaged tubes—*e.g.*, pus-tubes, tubes the seat of gestation, etc.—by enucleation, with ligation of vessels only as I have described in my paper, as the simplest, safest and most scientific method of dealing with such masses. I have removed successfully ovarian tumors, cysts, tubo-ovarian abscesses, adherent ovaries and tubes by enucleation, ligating only the bleeding vessels with catgut. In two instances I removed an adherent ovarian cyst and tube, and an extensively adherent tubo-ovarian abscess, by enucleation without applying a ligature; no vessel was ligated or clamped, as there was no bleeding.

From a study of the cases cited, and comparison of the methods used by various physicians and surgeons, I can only draw the following conclusions:

1. That ectopic gestation is strictly a surgical disease.

2. That an ectopic mass should be removed by abdominal section as soon as the diagnosis is made, no matter what the stage of the disease.

3. That with careful antiseptic and aseptic precautions, provided the operator is familiar with the special anatomical conditions associated, an operation for ectopic gestation has a mortality at or about *nil*, or less than that associated with the condition previous to operation.

4. That an ectopic mass should be removed by enucleation, with ligation of vessels only, using absorbable ligatures; the pedicle should not be transfixed or tied off in sections, but should be cut across, and only the individual vessels ligated. This does away with mass, non-absorbable and dead ligatures, sloughing and painful stumps, pelvic exudates, the cautery, and wandering ligatures, etc.

5. That enucleation is the safest, simplest and most scientific method of removing an ectopic mass, etc.; there is no danger of hemorrhage; if a vessel is severed, it can be caught at once and ligated.

6. That with enucleation there is less danger of injuring adjacent viscera; recovery is rapid, and the danger of sepsis is reduced to the minimum.

7. That when a Fallopian tube is removed, the operation should be complete; no stump should be left. When the serosa of the tube at the tubo-uterine junction is not totally destroyed, it should be divided in a circle about a quarter of an inch from the uterine cornua, dissected back to the uterus, and the cut edges, after cutting off the tube flush with the uterus, united by a continuous catgut suture.

8. That in removing an appendage, etc., by enucleation, the cut edges of the broad ligament should be united with a continuous absorbable suture.

9. That even when both appendages are removed, a uterus that is in good position and not irreparably diseased should not be removed.

10. That if there is local or general infection the cavity or cavities should be freely flushed with hot saline solution.

11. That if drainage is necessitated, one or more Morris' capillary gauze wicks should be used instead of iodoform or other gauze packing, glass, or other stiff tubes.

12. That to prevent hernia the incision should be small, using, if drainage is necessitated, capillary wicks, and the wound be closed layer by layer separately, and thus accurately, with sterilized chromicized tendon or chromicized catgut.

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## *THE TECHNIQUE OF PROFESSOR KEEN'S SURGICAL CLINIC IN THE JEFFERSON MEDICAL COLLEGE HOSPITAL.*

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While the achievement of satisfactory results in surgery does not depend alone on a refinement of operative technique which is as perfect as modern science can make it, and while it is recognized that sound judgment and thorough operative ability are most important requisites to him who expects to deal successfully with surgical maladies, yet the strict attention to detail in the care of the patient, in the cycle of his existence in the hospital, prior to, during, and after operation, must bear much weight in attaining that end which is always uppermost in the surgeon's mind—the ultimate cure of the patient. The technique which is followed in a large hospital clinic where every opportunity is offered to try the various methods advanced from time to time, to discard the faulty ones, and retain those which have stood the test of rigid and most careful examination, must be of interest to the physician engaged in surgical work, but who is not in a position to make extensive personal investigations to find out what methods are absolutely reliable.

The methods employed by Dr. Keen in the Surgical Clinic of the Jefferson Hospital, which represents one of the largest surgical clinics in the United States, are set forth in detail under the following several headings: First, the operating arena and paraphernalia at hand; second, the materials needed for each operation; third, the preparatory care of the patient; fourth, the surgeon and his assistants; fifth, the operation; sixth, the after-treatment of the patient.

The *operating arena* of the clinical amphitheatre, which is a building separate from the hospital wards, is so arranged as to be in the centre of a series of seats raised in tiers. This affords to the students on the benches a good view of the operation. Wainscoting of glazed tile, 1.5 meters in height, separates the rows of benches from the arena, which is laid with a hard, non-porous, mosaic stone floor, sloping to an air-tight drain. The floor and tile work are thoroughly scrubbed with hot water before and after each operation and mopped with a solution of bichloride of mercury 1:1000, and the floor of the amphitheatre is sprinkled with the same solution. This proceeding is made necessary by the constant moving about of assistants and the coming and going of the large body of students. More or less dust is whirled into the atmosphere, and this repeated mopping and sprinkling is done to limit as far as possible the impregnation of the atmosphere with germs, and to prevent the wound from becoming infected from germ-laden dust coming in contact with it, the dust in the air offering the only danger. The room is lighted by an overhead skylight, a provision found necessary to obtain the greatest amount of light on the field of operation. For operations performed after sundown the necessary illumination is obtained from a drop-light of thirty-six flames suspended over the operating table, and if it is desired to have light nearer the wound, a nurse holds a portable incandescent light, which is always in readiness, in the most advantageous way and so as not to interfere with the movements of the surgeon. In brain cases at night Dr. Keen usually finds it more convenient to use an electric headlight on account of the small field of operation and to avoid crowding of assistants.

In the middle of the arena stands the operating table devised by Boldt, made of an iron frame, enameled in white, with portable plate-glass top. The simplicity of mechanism of this table is of note, as the head-rest and foot-end can be lowered, and the patient can be placed in the Trendelenburg posture at a moment's notice. On the sides of the arena are the smaller tables, two on each side, for instruments, etc., being made also of enameled iron frames and glass tops which can be lifted. These tables are scrubbed carefully with soap and water, then with a corrosive solution, and at the time of operation covered with bichloride sheets, the preparation of which will be described hereafter. At one end of the arena are two upright copper and brass boilers, of the Sprague-Schuyler pattern, each holding 115 litres, in one of which is boiling hot water and in the other water which has been boiled and cooled. The water in both has been heated to 116° C. Adjoining these is a Schimmelbusch sterilizer for boiling instruments, which apparatus has the advantage of hermetic occlusion by the cover and keeps the temperature of the boiling water equal at every point. This and the boilers are mounted on frames of the same material as the tables. Opposite the sterilizing apparatus is a large marble sink with taps of running water, hot and cold, where frequent ablutions of the hands and forearms are taken without the

use of basins, and on a glass shelf above the sink are glass jars of antiseptic solutions containing brushes, jars containing a solution of Johnston's ethereal soap—which is a solution of Castile soap in ether, and having added for coloring and germicidal properties a small percentage of pyoktanin—blunt-pointed orangewood sticks for cleansing nails, and a sterilized bowl containing alcohol. Alongside the marble sink is a large deep pan on an iron frame, all enameled, containing at the time of operation bichloride-of-mercury solution 1:1000 for disinfecting the hands and forearms. A covered metal vessel receives the soiled dressings, sponges, etc, which are removed from the room immediately after each operation. The plumbing of the sink and drain is frequently inspected and they are kept in perfect order. For the accommodation of visiting surgeons there are several chairs painted in white enamel in order to facilitate cleansing. At the other end of the arena is a small table which is covered with a sterilized sheet at the time of operation, on which are placed the necessary paraphernalia for the anesthetist's use—an Allis inhaler wrapped in a sterilized towel, an Esmarch chloroform inhaler, jaw forceps, mouth gag, tongue forceps, a bottle graduated in centimeters and containing Squibb's ether, a smaller one, also graduated, containing chloroform; hypodermic syringes ready for use, a faradic battery, and an apparatus for administering oxygen by inhalation.

Before each clinic the clinic nurse and her two assistants see that the arena is placed in order. Floor, tables, etc., are cleansed as above stated, and from the adjoining room is wheeled a rolling table on which are jars for dressings, sheets, towels, sponges, etc., which have previously been prepared in a room set apart for this purpose; the table also contains instruments on metal racks which have been taken from a glass instrument-closet in an adjoining room. These jars, etc., are placed in their regular places on the glass-top tables.

In the preparation of this material the strictest asepsis and antisepsis are observed, and the transaction is entrusted only to a nurse who has received sufficient training in this special work and who understands every detail in the preparation, which includes iodoform gauze, gauze pads, dressings and sponges, ligatures and sutures, towels and sheets, gowns, brushes, drainage tubes, rubber protective and receptacles for the various solutions. All the pads, dressings, sponges, drainage tubes, etc., are kept in glass jars covered with glass lids, which are made sterile by scrubbing with ethereal soap and water, scalding and filling them to the brim with mercuric chloride solution 1:1000, and allowing them to stand thus over night. In the morning this solution is poured off and the jars are ready for use. This sterilization is repeated each time the jar is emptied of its contents, which may be in a day or at the end of several days, so that there are always some jars in the process of sterilization.

*Gauze* is the most valuable of all dressings for wounds, and in its preparation that variety is selected which has the greatest absorbent power. The gauze as it comes from the shops is first boiled in a solution of carbonate of soda, rinsed out, and dried; it is cut into sections of half a meter square of four thicknesses, folded into dressings, and half a hundred of these wrapped in a sheet and placed in the sterilizer under pressure for half an hour, the temperature being raised to 116° C., at the end of which time they are removed with disinfected hands and placed in a sterilized jar. These are known as sterilized dressings. Gauze sponges are made by taking pieces of gauze one-third of a meter square, rolling each piece loosely in the form of a ball, twisting the free end and tucking it in, and sterilizing as in the case of the dressings. These are kept in a separate jar. Marine sponges are never used, on account of the uncertainty of making them perfectly sterile, and the great risk of infecting wounds.

In the preparation of bichloride gauze dressings the gauze, after the initial boiling in soda solution, is soaked for twenty four hours in bichloride of mercury solution 1:1000, wrung out, wrapped in a bichloride sheet and hung in the drying room. When dry it is spread out on the sheet, cut into pieces half a meter square, folded into dressings of four thicknesses each, and these put into a sterilized jar.

Probably the most tedious to prepare of all the gauze material is *iodoform gauze*, and after experimenting with numerous formulæ in its manufacture for a number of years, the present method was evolved, and the gauze is everything that could be desired and is absolutely sterile, with the iodoform evenly distributed in the meshes.

Ten pounds (3732. Gm.) of gauze is unwound from a roll, and having been boiled in a soda solution is cut into two-meter lengths and steeped for a period of twenty-four hours

in corrosive sublimate solution 1:1000, contained in a large stone crock. At the end of this steeping the future handling of the gauze must be done with the strictest regard for antisepsis. Before removing it from the crock the nurse sees that her finger-nails are scrupulously clean, scrubs her hands and forearms energetically with soap and water, and bathes them in alcohol; this is followed by a vigorous use of the nail-brush and bichloride solution, and she dons a sterilized operating gown. As much care is used in hand disinfection in the preparation of gauze as for the operation. A sterilized sheet is spread out on a table upon which are placed two sterilized bowls, into one of which an assistant pours three pints (1.41 liters) of absolute alcohol and into the other adds the ingredients for the emulsion—three pounds (1119.72 Gm.) of glycerin and one pound (373.24 Gm.) of iodoform which has been made sterile by dry heat—the necessary quantities for making up ten pounds of gauze. The nurse mixes the iodoform and glycerin by stirring with the hand, and adds the emulsion formed to the bowl of alcohol. The gauze is lifted from the crock, wrung out, and each of the two-meter lengths of gauze stirred in this mixture with the hands for one minute, and wrung out. The iodoform will have infiltrated itself into the meshes of the gauze, and this process is supplemented by rubbing the gauze for several minutes between the hands after it is wrung out of the mixture. It is folded lengthwise into narrow strips, rolled up like a bandage and each piece put into a small covered glass jar that has been made sterile. Each jar contains a single roll, and the gauze is laid in it in such a way that when the free end is drawn upon the gauze will unroll.

*Towels* and *sheets* are washed in warm water with oleine soap and are given numerous rinsings until all evidences of blood-stains are removed. After drying, parcels of two dozen towels each, wrapped in a small sheet, are placed in the sterilizer, remaining there for half an hour, the temperature of 116° C. being maintained. They are kept on hand in sterilized glass jars.

*Gauze pads* for abdominal operations are made as suggested by Ashton, of eight thicknesses of washed gauze nine inches square (22.9 cm.), with the edges tucked in and hemmed so as to prevent fraying; ten of these are wrapped in a towel and sterilized for half an hour in live steam under pressure; they are then put in a jar containing three-per-cent. carbolic acid solution. When needed for operation, if time permits they are boiled in water for twenty minutes and allowed to stand in boiled water in a pan. In emergency cases they are given several rinsings in boiling water and kept in hot distilled water at the time of operation.

*Rubber protective* is used as a covering for dressings on a wound that discharges freely, in order to distribute the discharges throughout the dressings and to prevent infection from the air. It is washed in soap and water, scalded in hot water and kept in a jar containing three-per-cent. carbolic acid solution.

Although the object is to dispense with drainage, certain suppurating wounds, and very large wounds, make it desirable to use a *tubular drain*. These drains are made of soft india-rubber tubing and are used almost exclusively where a tubular drain is indicated; strands of silkworm-gut and iodoform gauze being used where smaller and capillary drains are needed. The tubing is washed in soap and water, cut into lengths, has holes cut in the sides, is rinsed and scalded and kept in a three-per-cent. carbolic solution, as bichloride of mercury will form chemical combinations with the rubber.

*Wet gauze bandages* are used to take a few turns over the dressing to hold it in place before applying the outer cotton bandage. Gauze is cut into strips eight yards (731.2 cm.) long and five inches (12.7 cm.) wide and sterilized. These strips are wound, after sterilization, on round wooden sticks five inches (12.7 cm.) long, after boiling them for one hour. The bandages thus rolled are kept in a 1:1000 bichloride solution in a glass jar.

Where abundant discharge is expected from wounds—as in an extensive dissection for removal of advanced carcinoma of the breast, or in general peritonitis in which, for example, bilateral drainage may be used—the primary gauze dressing next to the wound is supplemented by a large pad of *wood wool* of a size large enough to entirely cover the gauze. These pads are made by encasing a layer of wood wool one and a half feet (45.7 cm.) long, one foot (30. cm.) wide, and two inches (5. cm.) thick, with a single thickness of gauze to prevent the wood wool from separating. These pads are wrapped in small sheets and sterilized for one hour. They are folded and kept in covered sterilized jars. Absorbent cotton is required occasionally in dressing cases and is sterilized for half an hour in the sterilizer and kept in sterile jars. Gauze, however, has

supplanted its use to such an extent that it is seldom used except in fracture dressings.

Small *hand-brushes* made of hog-bristles mounted on wooden backs are the best instruments with which to accomplish mechanical cleansing of hands, instruments, and operative area. The substitutes that have been suggested and tried, as cotton, lamb's wool, excelsior, etc., have not proved entirely satisfactory. The utmost care is required in the cleansing of brushes lest they prove efficient carriers of infection. They are scalded in boiling water, and those for soap and water use are kept each in a small jar containing saturated solution of boric acid; and those for scrubbing with bichloride solution are kept in a jar containing this solution in 1: 1000 strength. Two separate brushes are reserved for the patient, one for soap and water, the other for bichloride solution, and kept in the same way. All brushes used for mechanical cleansing from dirt after examination of the rectum, cancer of the uterus, etc., have *black* bristles, while the brushes used for scrubbing with bichloride solutions are made of *white* bristles. By this means no interchange of the brushes can be made. Brushes used in purulent wounds are destroyed after operation.

The preparation of *animal ligatures* has been a matter of most careful investigation for many years. All other material has finally been discarded in favor of catgut, which is undoubtedly the ideal ligature, but the manner in which it could be rendered absolutely sterile and still retain the peculiar properties required of it has been a bone of contention. Different methods have been followed in past years in its preparation, among them methods of Fowler and Leavens, by which catgut is kept in alcohol in sealed tubes; the preparation by formalin recently proposed by Senn; cumol catgut, etc.—all of which have finally been abandoned as unsatisfactory, in that the apparatus needed is expensive and troublesome, considerable time is consumed in the preparation, and the gut is less efficient as to strength and durability.

Mr. Johnston, of Jefferson Hospital, devised the method of preparation of catgut which has since been used and which has proved eminently satisfactory. Raw catgut, from the submucous coat of sheep's intestines, as obtained from the shops, is steeped in absolute ether entirely purified from sulphuric acid, to remove the fat,—light gut remaining twenty-four hours in the ether and the heavier gut forty-eight hours. When it has been steeped a sufficient length of time in the ether the gut is transferred directly into a corrosive sublimate solution, consisting of mercuric chloride 40 grains (2.6 Gm.), tartaric acid 200 grains (12.96 Gm.), and alcohol 12 ounces (354.88 Cc.). The lightest weight gut should not remain in the corrosive mixture longer than from five to ten minutes, the next size from ten to fifteen minutes, and the largest sizes from twenty to twenty-five minutes. While the gut is being steeped and before it is transferred from the ether to the corrosive mixture, jars for keeping it ready for use are prepared by thoroughly scalding, filling them with an aqueous corrosive-sublimate solution 1: 1000, allowing them to stand thus filled until the following day. This solution is then emptied and the jars nearly filled with alcohol (95 per cent. strength) and containing palladium bichloride in the proportion of $\frac{1}{16}$ of a grain (0.0040 Gm.)—*i.e.*, two drops of a palladium bichloride solution containing 15 grains (0.972 Gm.) of the salt to the ounce—to a pint of alcohol. By experiment it has been shown that more of the true bichloride of palladium will not stay in solution in alcohol, and when a precipitate occurs through excess of the palladium the whole goes to the bottom and is not again soluble in alcohol. The gut being lifted with an aseptic tenaculum from the bichloride mixture, is dropped into the prepared jars of palladium-alcohol and is ready for use. Catgut thus prepared is strong, pliable, and smooth, and keeps indefinitely as far as yet known. Careful laboratory experimentation by Dr. Coplin and Dr. Harris, and extensive clinical observation, prove the fact that it is sterile. When an operation is about to be performed the outside of the jar is rinsed with hot bichloride solution 1: 1000, the glass stopper removed, and the mouth of the jar well wiped with the solution. The quantity of gut judged necessary for the operation is lifted from the jar by means of a sterilized tenaculum, and dropped into a dish previously sterilized and containing sufficient alcohol to cover the gut. If more gut is removed from the jar than is necessary for the operation the quantity left is immersed in the mercuric chloride solution for five minutes and transferred to the stock jar. This precaution gives absolute safety against infection.

When it is desirable to have ligatures or buried sutures remain intact for a longer time than it usually takes for them to be absorbed—the limit of this time being usually from five to six days—the gut is made more

durable by chromicizing it. It is steeped in absolute ether as before for twenty-four hours. Commercial ether contains a trace of sulphuric acid which ultimately softens and rots the gut, so it is not used. The gut is transferred to the corrosive-sublimate solution from five to thirty minutes, according to its thickness; it is then washed in pure alcohol to remove any deposit of bichloride of mercury, and transferred to a solution made by adding half a pint of absolute alcohol to an equal amount of sterile water in which has been dissolved five grains (0.324 Gm.) of bichromate of potassium. The gut remains in this solution eighteen hours, is rinsed off in alcohol, and dropped into a sterilized jar containing pure alcohol, in which has been dissolved one-sixteenth of a grain (0.0040 Gm.) of bichloride of palladium to the pint. This gut will last from fifteen to twenty-five days.

*Kangaroo tendon* is used in preference to catgut in certain cases, as in an operation for the radical cure of hernia where the several muscular layers are sutured to Poupart's ligament after the method of Bassini or Halsted. The tendon is here used on account of its greater permanence, as it is not absorbed for two or three months. The raw tendon having been soaked in absolute ether for forty-eight hours, is boiled at a temperature of 100° C. in alcohol for one hour. This temperature is maintained by means of a water-bath. It is then put in the mercuric chloride solution mentioned in the preparation of catgut for ten minutes, and kept in sterilized glass-stoppered jars containing bichloride of palladium one-sixteenth of a grain (0.0040 Cc.) to the pint of absolute alcohol. Pieces of the tendon thus prepared, placed on sterilized agar and gelatin and immersed in bouillon, have yielded no growth after numerous experiments by Dr. Coplin.

For suturing, silk, silkworm-gut, and silver wire are used. Silver wire is used principally in suturing bone in fractures and as a subcuticular stitch where stitch-hole scars are to be avoided. It is boiled with the instruments.

*Silk* of various sizes, received in skeins, is wound on glass spools, and several spools put in a test-tube which is plugged with cotton. The fractional method of sterilization is used when there is no urgent demand for the silk. The tubes are plugged with cotton and are placed in the sterilizer, a temperature of 100° C. being maintained for one hour each day for three successive days. At this temperature on the first day all adult bacteria with which the surgeon has to deal are killed; on the second day the spores, and those spores which may have developed into full-grown bacteria, are destroyed; and on the third day any spores which may finally remain are sure to be destroyed. When, however, there is not sufficient time to follow this method the tubes are placed in the autoclave, which is a steam boiler in which the steam is locked up tight, so that a high temperature can be reached; it is kept in this for thirty minutes after the mercury has reached 116° C., and on removal is kept in the tube until needed, when the cotton plug is removed and the spools are dropped in a sterilized dish containing absolute alcohol.

*Silkworm-gut* is used generally in closing wounds with interrupted sutures. It is received in strands each one foot long; these are scrubbed with a brush and soap, rinsed several times in water and in alcohol, and immersed in bichloride solution 1:1000 over night. They are kept in absolute alcohol in a sterile glass-stoppered jar.

Cotton roller bandages are kept in a separate jar and sterilized by steam in the sterilizer; four different widths are used, from one to four inches (2.5 cm. to 10.2 cm.) each, eight yards (7.3 meters) in length.

In bone operations a small jar of Horsley's *wax* is always at hand, and its applicability is nowhere better indicated than in the oozing, sawn end of bone in amputations, the hemorrhage from which is controlled immediately it is applied; its value as an agent in controlling hemorrhage cannot be overestimated. It is made of seven parts of beeswax to one part each of almond oil and salicylic acid.

*Iodoform collodion* is used to seal small superficial wounds where it is possible or desirable to dispense with elaborate dressings, as after removal of a small sebaceous cyst from the face. A few thicknesses of sterilized gauze sufficiently large to cover the sutures are laid over the wound and painted with collodion, which acts as a thorough protective against atmospheric influences.

But one dusting powder is used in the clinic—*iodoform*—and that very rarely. It is sterilized by heat, and is not used as an active disinfecting agent, but as a drying powder in rare instances, where it will aid in absorbing secretions from a large granulating surface. Should infection occur it renders ptomaines harmless by forming innocuous combination with them, as shown by de Ruyter and Behring. Its use, however, is

limited almost entirely to tubercular cases, as it exerts such a decided antitubercular influence. The improvement noticed in these cases under its use is second only to the action of mercury in syphilis.

The various *antiseptic solutions* that are made for each clinic, and kept in large flasks, are solutions of mercuric chloride, carbolic acid, and boric acid. Mercuric-chloride solution is made by adding two drachms (7.39 Gm.) of the salt to a gallon of distilled water, as in other water the earthy substances combine with the mercury. This makes a strength of 1:500, and by adding hot water in equal amount to the solution at the time of operation it makes the standard solution of 1:1000. In order to distinguish it from other solutions it is colored red by adding a drop of a saturated alcoholic solution of eosin to a pint of the mercurial solution. A five-per-cent. carbolic-acid solution is known at a glance by its blue color, a drop of a saturated aqueous solution of pyoktanin giving it this color; this solution is also diluted one-half when used. Boric acid is kept in saturated solution and diluted to any strength desired when needed. Solution of sodium chloride, or normal salt solution, is made by dissolving six grammes of table salt in a liter of pure water, which is filtered through druggists' filter-paper into flasks; these flasks are plugged with cotton and sterilized by heating to a temperature of 116° C. for half an hour. It is used principally in irrigation in cavities, for hypodermoclysis and enteroclysis, and for intravenous injection in cases of shock or great loss of blood. For hypodermoclysis and intravenous injection the apparatus of Collin (see American Year-book of Medicine and Surgery, 1897, page 224) is used very advantageously; and for enteroclysis a rectal tube and fountain syringe are always at hand. There are also in readiness a Paquelin cautery adjusted for immediate handling, an aspirating apparatus, and tracheal tubes; splints, etc., and an outfit for bacteriological examination are kept in the adjoining room with the instruments.

*The Preparation of the Patient.*—The object of this is twofold: first, to put him in better physical health and raise the general tone of his system, thus increasing his tissue resistance to the invasion of infectious organisms; and second, by a series of local cleansings, in which the mechanical means is of the highest importance, to render surgically clean the area to be operated upon. It will depend upon the exigencies of the case whether the period of preparation shall be a single day or can be extended several days, the latter being by all means preferable if the case be one of gravity and there be no special urgency. Especially will it be desirable to lengthen this treatment if the patient is suffering from any chronic organic disease in conjunction with his surgical ailment, allied conditions being not infrequently met with; and it is a matter of some gravity in certain cases to decide whether any operation is justifiable or not. As a rule in organic cardiac disease the valvular lesion does not contraindicate operation, and even the gravest of operations may be performed without any untoward results. In such cases the utmost care is taken in administering the ether, which is given in a minimum amount necessary to induce anesthesia, and the operation is done speedily—never, however, hastily. If there be serious advanced organic disease of the kidneys, an elective operation is withheld. If, however, surgical interference is necessary to save life—as in amputation for gangrenous extremities, a vesical calculus which is causing much mischief, or a cervical tumor which is encroaching upon the trachea—operation is performed with the aid of chloroform in spite of the nephritis. Chloroform anesthesia is used in these cases, as the weight of professional opinion leans in favor of it, and as shown in the tabulated list of anesthesia cases summed up by Dr. Da Costa.

The patient is given a hot tub-bath on admission, is furnished with fresh laundered underlinen and nightshirt, and put to bed. Confinement to bed prior to operation accustoms him to his unnatural experience, relieves him of the constipation and sleeplessness which always follow this change, quiets his heart and lungs, and keeps him in an equable temperature. If he be an excessive user of alcohol, stimulants are cut down to a safe dose; if he be a moderate user of spirits, however, the alcohol is cut off entirely. A saline is administered at once and repeated until the bowels are completely unloaded. Some time during the first day the resident surgeon takes a full history of the case, comprising in detail the family history, with especial inquiry as to any hereditary taint, the past history, and the history of the present illness, with a minute examination and description of the condition of special organs. The family history will aid in arriving at a definite conclusion as to the influence of heredity; the past history will disclose the patient's prior illnesses and his probable lia-

bility to infection; the history of the present trouble will give a detailed account of the cause, onset and development of the disease for which the patient has sought relief. The examination of special organs, heart, lungs, liver and kidneys will give the operator exact information as to the patient's general condition, and this is taken well into account and will have much weight in deciding as to what extent operation is feasible. Any unusual phenomenon, mental or physical, is noted in the history report under Remarks.

On the first day a careful examination of the urine is made by the anesthetist in person; this covers a reaction test with litmus, the specific gravity, a test for albumen and sugar. In testing for albumen the acetic-acid test is used, which is made by pouring into a small test-tube half a drachm (1.8 Gm.) of a solution of eqnal parts of acetic acid and water, which solution is always kept on hand, and dropping into the tube a crystal of ferrocyanide of potassium, shaking it until the crystal is dissolved. The urine is then allowed to trickle down the side of the tube, and at the point of junction, if there be a trace of albumen, a white line will appear. If any albumen is found the amount of urine voided during the next twenty-four hours is collected, and a small quantity boiled and tested for the amount of urea present by the Doremus apparatus.

In testing for sugar Haines' solution is employed, which consists of a mixture of cupric sulphate 30 grains (1.848 Gm.), distilled water ½ ounce (14.79 Cc.), glycerin ½ ounce (14.79 Cc.), and liquor potassii 5 ounces (147.8 Cc.). One drachm (3.70 Cc.) of this solution is boiled gently, six drops (0.37 Cc.) of urine added, and if any sugar is present a yellowish-red precipitate will be deposited in the bottom of the tube.

A microscopic examination for blood or pus corpuscles, tube casts and crystalline or other deposits completes the urinary examination. Hemorrhage from the urinary tract will demand further investigation. A moderate number of hyaline casts will not be of any weighty significance or have any serious bearing against operation.

During the several days preceding operation the patient is kept under rigid ward discipline and a strict regimen and confined to his bed. On the first night the imaginative horrors of hospital life usually present themselves with unusual force, which keeps him wakeful and restless, so he is given fifteen grains (0.97 Gm.) of trional if necessary in hot beef-tea, before the lights are turned low. The sound sleep which this potion induces has a beneficial effect upon the patient's nervous system, which is noticeable the following morning, when he will be found more cheerful and full of courage. If a tonic is necessary he is given two grains (0.13 Gm.) quinine sulphate and $\frac{1}{30}$ grain (0.0022 Gm.) strychnine sulphate at regular intervals of four hours each or longer, and he is kept on light, easily digestible, nutritious food. The hot bath, which is a prominent factor in gaining excellent results in surgery, is repeated daily to stimulate proper skin action, and gentle massage produces a more active circulation, supplying to muscles exercise which requires no effort upon the part of the patient and is an excellent adjunct to the preliminary treatment which aims to improve his general condition. The application of these manipulations to the abdomen also increases peristalsis and induces a daily evacuation of the bowels—which it is extremely important should occur, for patients in whom the bowels are unloaded are less liable to infection—and the number of movements is recorded on a temperature chart, together with the quantity of urine secreted in each twenty-four hours. The morning and evening temperature is recorded on a Wilson chart, with the pulse-rate and the number of respirations per minute, so that the surgeon on making his daily rounds can infer on glancing over the chart what is the condition of the patient and whether there is any change from the record of previous days.

Up to this time the treatment has been only constitutional and moral. On the day before the operation attention is more especially directed to the local trouble for which the patient has sought relief. A series of local cleansings by mechanical rubbings and chemical disinfectants is now instituted, with the object of making the area surrounding the part to be incised or excised, an aseptic field. This disinfection is done twenty-four hours before operation by the head nurse of the ward and her assistant, or by the orderly and his assistant if it be a male screen case. These nurses have been thoroughly schooled in the methods and objects of asepsis and antisepsis, by the Resident and the Directress of the training school. Screens are thrown around the patient's bed, and the part to be operated on is exposed and surrounded by clean towels. The operative area is lathered with soap and brush, the soap is well rubbed into the skin with the hand, the hair cover-

ing it removed with a razor and the part rinsed off with distilled water as hot as the patient can bear it. A hot moist towel is laid over the part temporarily, while material is furnished for the further disinfection. From now on until the patient's final discharge from the hospital the strictest antisepsis is observed with all objects that come in contact with the operative field. The nurse scrubs her forearms and hands, paying special attention to her finger-nails, with soap and water and with alcohol, while her assistant wheels the small ward carriage in which are bottles of solution and jars containing dressings to the bedside, and pours out into two separate sterilized bowls a solution of bichloride of mercury 1:1000, in one of which the nurse scrubs her hands and forearms after using the alcohol, the other of which is reserved for the patient. Each bowl contains its own sterilized brush. The moist towel is removed from the patient and the area before mentioned rubbed with alcohol, the nurse using for this purpose a ball of sterilized lamb's wool enclosed in sterilized gauze. The assistant pours the alcohol on the part slowly as the nurse proceeds with the rubbing, and the assistant does not touch anything that will come in contact with the area being disinfected. After the alcohol rubbing the assistant removes the lid from the jar containing towels, and the nurse places a sterilized towel on each side of the area. The bichloride solution is then handed, and the part scrubbed fully five minutes with as much force as the patient will comfortably bear; it is dried with a sterile towel, pieces of corrosive gauze laid over the whole area and held in place by a bandage or binder adapted to the particular area,—a Scultetus bandage if the prepared part be the abdomen or back, the classical spiral if the part be an extremity. This completes the primary disinfection. The patient's bed is arranged tidily and the screens removed from around it.

The extent of the area that is thus cleansed will depend altogether upon its location and upon the gravity of the operation to be performed. A sebaceous cyst of the scalp, for example, would require shaving and cleansing of the growth and a limited area surrounding it, a towel properly placed at the time of operation protecting the operator's hands and instruments from coming in contact with the rest of the head; while a proposed craniotomy would necessitate cleansing and shaving of the entire head, neck and shoulders, including eyebrows and beard, special attention being given to the external ear. A small fibroma of the breast where diagnosis is absolutely certain would require cleansing only of the mammary gland and immediate vicinity, while the removal of a carcinoma of the breast, whether involvement of the axillary glands be previously detected or not, or in a case of any mammary growth simulating malignancy and where positive diagnosis cannot be made before incision, would demand an extensive surgical toilet reaching from the line of the jaw to the level of the umbilicus and from the opposite shoulder to the middle of the back, including the arm of the affected side.

In operations upon the pubic, perineal and ischio-rectal or sacral regions in the female, the pubes, vulva and neighboring parts are shaved and cleansed, the vagina is scrubbed with a pledget of lamb's wool and a mixture of an ounce (29.57 Cc.) of the tincture of green soap to one pint (373.24 Cc.) of a two-per-cent. creolin mixture, followed by copious douches of warm sterilized water; this in turn by a boric acid douche three drachms (11.09 Cc.) to the pint. A bichloride dressing is then applied, and held in place by a broad T-binder. For douching the vagina the boric acid solution is used in preference to the bichloride solution, which is still used extensively in some hospitals but which does not exercise the slightest germicidal influence upon micro-organisms in the vagina, as Steffeck has shown, and furthermore by irritation causes lessened tissue resistance and greater liability to infection, as Schimmelbusch has proved by actual experiment.

Operations on the rectum will require frequent laxatives and enemas beforehand, and at the time of operation a tampon of lamb's wool, with string attached to facilitate its removal, is pushed into the bowel, and located above the operative site in order to keep the intestinal contents from soiling the wound.

In abdominal operations the umbilicus will require special attention, and where the folds of the skin run down to such a depth that it is impossible to cleanse it thoroughly, it is covered by a wet bichloride mop, and at the time of operation iodoform collodion is poured over the umbilicus, shutting it off entirely from the operative field. In operations on the lower extremities it will often be a matter of considerable patience to thoroughly disinfect the skin of the feet, which usually are not bathed regularly by the class of patients who fill the hospital wards, and in order to get rid of the excrementitious matter, and

the saprophytic and pathogenic bacteria that are sheltered by the hard callous epidermis, a hot compress of weak bichloride solution surrounded by rubber dam is applied to the extremities after each daily bathing and allowed to remain. This is followed by scrubbing with the solution. The callous epidermis comes away by maceration after several such compresses have been applied. In operations upon the genito-urinary tract, besides the cleansing of skin, scrotum, and penis in the male, if necessary the bladder is irrigated three times a day with a solution of boric acid ten grains (0.648 Gm.) to the ounce, and salol and boric acid, each five grains (0.324 Gm.), are administered every four hours to disinfect the urine.

In operations in the mouth, pharynx, nose, or on either maxilla, the patient uses a mouth wash and gargle of a solution of boric acid and Listerine, every four hours, and uses a moderately stiff tooth-brush and precipitated chalk at least thrice daily. The nose and mouth are also thoroughly sprayed every two hours with a boric acid solution for two or three days.

The evening before the day of operation the patient is given two drachms (7.39 Gm.) of Rochelle salts, which dose is repeated early the following morning, and when the bowels have moved the rectum is flushed with a copious soap-and-water enema.

On the morning of the operation day he is given a hot sponge-bath in bed, followed by an alcohol rubbing. The dressings applied the previous day are removed, the disinfection repeated, and fresh dressings applied. He is not allowed to rise from the bed unless it be for evacuation of the bladder or bowels, as thus he will expend the least amount of vital force. A final enema of soap and water is given to thoroughly cleanse and empty the rectum, so that its mucous surface will be in condition to absorb, should extreme shock or excessive hemorrhage later on call for enteroclysis and the injection of stimulating enemata. A cup of tea or coffee or beef-tea is taken five hours before operation, and nothing else passes the lips, unless it be a small draught of brandy. He is given a suit of clean underlinen, a nightshirt, and loosely fitting cotton-flannel stockings which envelop the whole limbs and are tied loosely around the waist. The nurse removes any jewelry and false teeth worn by the patient, and at the stated time he is wheeled on a rolling table to the anesthetizing room.

[*To be concluded.*]

## *THE VALUE OF CAMPHORIC ACID IN THE TREATMENT OF NIGHT SWEATS.*

By H. A. Hare, M.D.,
Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

In the January issue of the *Edinburgh Medical Journal* my friend Dr. Ralph Stockman contributes a paper in which he notes the value of camphoric acid in the treatment of night sweats, and quotes considerably from foreign literature on this subject in support of his own clinical experience.

The writer of this article has on several occasions in papers which have been published, and every year to his class of medical students, emphasized the value of this remedy as an antisudorific. His first experience with it was in the wards of St. Agnes' Hospital during 1890–91, where he found, as Dr. Stockman has, that it controlled the sweats of tuberculosis in the great majority of cases and did not produce any disagreeable symptoms whatever, such as are usually caused by atropine or other powerful antisudorifics. He also in the first edition of his "Text-book of Practical Therapeutics," published in 1891, spoke of the value of this drug for this purpose, and in *The Medical News* of April 4, 1891, he contributed a paper in which he detailed two cases which had been markedly benefited by very moderate doses of the drug. He pointed out in this paper that twenty grains was usually quite sufficient to control the sweat, provided it was given early enough to be absorbed before the time of the sweat was reached; and he also pointed out, what other Continental observers had previously noted, that as much as sixty grains of this drug may be given without deleterious effect. A continued large employment of camphoric acid in the six years that have succeeded this report has still further confirmed his high opinion of this remedy. Like every other remedy, it will fail in some cases, but no remedy has been met with which in his hands so universally succeeds. It may be given in cachet, dissolved in whiskey or brandy, or placed in dry powder upon the tongue and washed down with a little water or milk; but as it is slowly absorbed it should be given an hour or two before the time at which the sweat usually comes on. The writer has also found camphoric acid of great value in the treatment of idiopathic ptyalism as it is sometimes met with in young children, as it controls the salivation without disordering the digestion.

# The Therapeutic Gazette

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## Leading Articles.

### *THE TREATMENT OF BRONCHOPNEUMONIA.*

In the THERAPEUTIC GAZETTE for October, 1896, we published a leading article on the Treatment of Pneumonia in Children, and the frequent occurrence of this class of cases lends additional interest to the paper which Gaston Lyon contributes upon this subject to the *Revue de Thérapeutique Médico-Chirurgicale* of November 1, 1896, in which, after pointing out the gravity of the affection, and that in many cases it is a secondary complication of other diseases, such as measles, influenza, typhoid fever and similar ailments, he dwells upon its frequency in childhood and then discusses its treatment.

In regard to prophylaxis, he asserts that it is absolutely necessary that a patient suffering from the disease should be isolated in order to diminish the chances of other children in the same institution being infected; and further, that in the process of isolation care should be taken that children suffering from any one of the infectious diseases named should not be unduly exposed. He believes that it is well to carry out rigid antisepsis in regard to the mouth and nasal cavities, and suggests that the recommendation of Marfan, of instilling several times a day an antiseptic liquid into the nasal cavities, should be carried out. Thus five or six drops of the following solution may be employed:

℞ Oil of sweet almonds, 1½ ounces;
Menthol, 15 grains.

Or in other cases there may be employed:

℞ Vaselin, 1 ounce;
Resorcin, 7 grains.

Or, in place of resorcin, guaiacol 15 grains.

This is to be applied to the nostrils as high up as possible with the finger. Nasal irrigations may be practiced in some very young children, using carbolic acid solutions in the proportions of 1:500, or resorcin in a solution of 1:100, and these solutions may also be used for washing the mouth—particularly about the gums—teeth and tongue. Sometimes it is well to rinse out the mouth several times daily with water which has been sterilized by boiling. In whooping-cough, influenza, measles, and other conditions associated with bronchitis, Lyon facilitates expectoration by the inhalation of aromatic vapors; he also sees to it that the child does not remain too long in one position so as to produce a tendency to hypostatic congestion. Care is also taken to render the intestinal canal antiseptic, as far as possible, as he believes that the bacillus *coli communis* may pass from the intestine into the lung and so produce secondary bronchopneumonia. For this reason the regulation of the diet in order to avoid any digestive disturbance is of the greatest importance. By these measures directed to the respiratory and alimentary tracts Lyon thinks that he distinctly helps in preventing the occurrence of bronchopneumonia as a complication of the diseases named.

In regard to the treatment of this disease in children, he believes that in the early stages of the affection the congestive process should be combated by revulsive measures and by the application of hot compresses or mustard plasters, or by rubbing the chest with oil or turpentine mixed with camphorated liniment, the skin being covered afterward by sheets of thin rubber. In other cases cold applications may be employed, but these are not so useful. If mustard poultices are used, care must be taken to prevent them from becoming cold and chilling the patient, and as mucus accumulates in the bronchial tubes,

particularly if it is in excess, he believes that it is well to give an emetic. For this purpose he thinks that ipecac is the best drug that we can employ. He generally orders the following prescription:

℞ Syrup of ipecac, 1 ounce;
Powdered ipecac, 4 grains.

And gives two doses with a ten-minute interval. If the child is exceedingly feeble and it is not considered well to administer an emetic, the following mixture may be ordered:

℞ Syrup, 1 ounce;
Syrup of tolu, 1 ounce;
Cognac, 2½ drachms;
Acetate of ammonium, 20 grains;
Benzoate of sodium, 20 grains.
M.

One or two teaspoonfuls of this may be given every hour or every two hours according to the age of the patient. If the cough is excessive it may be well to add to this mixture from three to four drops of the tincture of belladonna or the tincture of aconite, but as a general rule narcotics and antispasmodics are not desirable in very young children. The air of the room in which the patient is lying should be moist, and it may be well, in addition to the steam which may be given off from the boiling water, to use steam which comes from the infusion of eucalpytus leaves to which has been added a little of the tincture of benzoin. In many cases, if constipation is present, it is well to give small doses of calomel, such as one-sixth of a grain, in order to evacuate the bowels and render them antiseptic. Drink should be given in abundance, particularly milk, as it facilitates renal activity. Fever is to be combated by the use of cold applied locally to the chest, or of tepid baths; or in other cases where sponge bathing is impossible, antipyrin may be used as in the following prescription:

℞ Antipyrin, 5 grains;
Syrup of cinchona, 1 ounce;
Syrup of eucalyptus, 1½ ounces;
Peppermint water, 2 ounces.
A small teaspoonful every hour or two.

Or the following prescription can be employed:

℞ Distilled water, ½ ounce;
Simple syrup, 2½ drachms;
Extract of licorice, 75 grains;
Neutral muriate of quinine, 8 grains.
A small teaspoonful at a dose.

In other cases it is better to employ quinine in suppository, as neutral hydrochlorate of quinine 3 grains, coca butter 15 grains.

The following may be used by the subcutaneous method, with a hypodermic syringe, but is not generally advisable:

℞ Hydrochlorate of quinine, 30 grains;
Distilled water, 2½ drachms.
Warm and give 10 to 30 drops at a dose.

As a stimulant it may be necessary to prescribe brandy or Malaga wine in small doses, or the following prescription may be used:

℞ Syrup of cinchona, ½ ounce;
Syrup of orange flower, ½ ounce;
Brandy, 1 to 2 ounces;
Infusion of mint, 2 ounces.
A small teaspoonful as needed.

The alcoholic stimulant, if used, should be given at regular intervals. Should there be evidence of a failing heart and some cyanosis, minute doses of powdered digitalis or infusion of digitalis may be given three times a day, or caffeine associated with benzoate of sodium may be given by hypodermic injection. To combat asphyxia when it is imminent and to overcome nervous adynamia, Lyon believes that camphorated oil injections are of value; he gives ten to thirty minims of a ten-per-cent. solution of camphor and sweet oil hypodermically. Sometimes minute doses of powdered camphor rubbed up with sugar of milk may be given internally. In case of severe cardiac failure where an active stimulant is required, the following prescription is given:

℞ Sulphuric ether, 10 to 30 drops;
Syrup of orange flower, 1 ounce;
Syrup of tolu, ½ ounce;
Linden water, 3 ounces;
Mint water, ½ ounce.

A teaspoonful of this mixture is given as frequently as needed.

In other instances where asphyxia seems imminent, the child may be plunged in a hot mustard-bath and remain there from four to five minutes. The bath is prepared by placing in it a small bag containing from three to five ounces of mustard flour. Whether it is wise to use the cold bath under these circumstances is doubtful, but some practitioners have been enthusiastic in its praise, particularly if there has been a tendency to hyperpyrexia; and in some cases Lyon asserts that its use in desperate illness results in "veritable resurrections."

The use of serum therapy, or the use of anti-streptococcus serum of Marmorek, is as yet uncertain, particularly as the infection is probably often a mixed one.

During the disease and during the convalescence the diet should be most nourishing

and easily digested, and as convalescence is about to be established it is well to make applications of iodine to the chest-wall or to aid in the absorption of exudatious by counter-irritation. During convalescence any bronchitis which persists should be treated by the various balsams, or by one or two teaspoonfuls a day of a mixture of equal parts of syrup of tolu and syrup of turpentine. In the way of tonics to general nutrition, cod-liver oil and hypophosphite of lime is of advantage; and should there be any involvement of the tracheo-bronchial glands or emphysema, iodide of potassium is particularly indicated. Iron is also of value should anemia be present, prescribed in the dose of three teaspoonfuls a day of the following mixture:

℞ Syrup, 1 ounce;
Syrup of terpine, 2 ounces;
Syrup of iodide of iron, 2 ounces;
Peppermint water, 2 ounces.

Good results also follow the use of arsenic in small doses. In the treatment of adults suffering from bronchopneumonia following these affections, it should be remembered that many of them are much depressed and gravely ill, and that alcohol, coffee, strychnine and kola are of value as rapidly acting stimulants. Digitalis and caffeine may also be needed. Cold baths are of doubtful value in some of these cases and tepid baths generally do better; indeed, these tepid baths are sometimes of the greatest possible service in relieving the patient. Should asphyxia and great dyspnea be present, injections of ether and caffeine are to be employed with sufficient frequency to produce good results. Care must be taken to insist upon sufficient nourishment being taken by the patient. Quinine and alcohol should be given, and a milk diet combined with digitalis and caffeine will also be of advantage.

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### *THE TREATMENT OF APOPLEXY.*

There are few conditions met by the practitioner of medicine in which the possibilities of treatment are so limited as they are in that condition which we generally term apoplexy, for although this term has been applied to a general train of symptoms, these symptoms may arise from several different causes, and unfortunately each and all of these causes have heretofore at least been largely beyond medical or surgical treatment. Within the last year there has been published in the shape of a small volume an exceedingly valuable experimental research by Leonard Hill of London, upon the physiology and pathology of the cerebral circulation; and in its pages, in addition to finding much of great interest, certain thoughts are advanced which may be of value to the physician in the treatment of the conditions of which we are speaking. He points out that Falkenheim and Naunyn recommend that the blood-pressure should be kept up by every means in conditions of cerebral compression; while on the other hand Bergmann, with whom Hill is in accord, clings to the traditional treatment of lowering blood-pressure by depletion. After pointing out certain facts which support the opinion of himself and Bergmann, Hill goes on to emphasize the fact that depletion is only indicated when the arterial tension is high, and he reiterates the statement already made by Gowers that before depletion is attempted the diagnosis of hemorrhage should be reasonably certain, because in thrombosis, embolism, and acute cerebral anemia a loss of blood will only do harm by weakening the cerebral circulation. The question as to the differential diagnosis between the paralysis produced by hemorrhage, by thrombosis, and by embolism gains an additional importance from a therapeutic standpoint over and above its diagnostic interest, and while we have not as yet outlined any definite series of symptoms which will separate positively these conditions from one another, it will be remembered that there are at least a few manifestations which may point to the exact cause of the paralysis.

In the first place apoplexy, which is due to hemorrhage into the brain, is usually met with only in that class of patients who have attained such an age that their arterial walls are undergoing atheromatous changes, although of course the presence of a syphilitic history, or other causes which tend to produce such changes in the arteries, may result in hemorrhagic apoplexy during the earlier years of life. Again in hemorrhage into the brain consciousness is generally lost, and the compression of the lower centres in the brain which is produced by hemorrhage is apt to result in the development of vomiting and contracted pupils; and again, it is usually the case that in hemorrhage into the brain the systemic shock is more manifest and the febrile movement is apt to be greater than when the paralysis results from thrombosis or embolism. It is true, on the other hand, that thrombosis of the cerebral blood-vessels

is rather a condition of advanced age than of youth, and it is a noteworthy fact that thrombosis frequently comes on during sleep, whereas hemorrhage usually follows some exertion and frequently takes place after the ingestion of circulatory stimulants. The history of syphilitic infection producing an endarteritis would of course point to thrombosis quite as much as to hemorrhage.

The differential diagnosis of paralysis due to embolism from that due to hemorrhage is still more difficult, but should the physician find evidence of chronic or ulcerative endocarditis or their results, or other causes for the formation of emboli, the diagnosis would be rather in favor of such a cause than of hemorrhage. It is also a noteworthy fact that paralysis from embolus is more commonly met with on the right side of the body owing to the fact that it is more easy for the embolus to pass into the left middle cerebral artery than into the right. Having endeavored to the best of our ability, therefore, to make a differential diagnosis between these three causes of cerebral paralysis according to Hill, we have certain therapeutic procedures to undertake. If it is embolism or thrombosis it will as a general rule be a mistake to bleed the patient; while if the cause of the paralysis be hemorrhage, venesection is usually indicated.

Hill goes even further than this, and asserts his belief that in cases of paralysis due to hemorrhage it would be a justifiable experiment to open the skull-cap in order to relieve the pressure which is being exerted upon the brain substance through the leaking blood-vessels; and at the same time the depletion results in a fall of general blood-pressure so that hemorrhage ceases by the more rapid coagulation of the blood and the plugging of the artery, and death is put aside because the opening in the skull prevents the compression of the medulla, which Hill's experiments have proved to be so fatal.

In other words, intracranial hemorrhage may be reasonably treated on the same surgical lines as intracranial abscess whenever death is imminent from compression. Hill also emphasizes a fact which has been familiar to physicians for many years, but which has not heretofore rested upon such scientific evidence, that free purgation depletes the brain and causes a determination of blood to the abdomen; and, on the other hand, that the application of cold to the head fails to cause constriction of the cerebral or any other vessels.

## *ON THE PREVENTION OF GONORRHEA.*

This subject is suggested by a pamphlet published by Dr. Albert H. Burr entitled "Gonorrhea: Its Ravages and its Prophylaxis."

It has been the habit for years not only among the laity, but also in the medical profession, to regard gonorrhea as a troublesome, annoying, often painful affection, comparatively innocuous when considered in relation to syphilis, self-limited and only exceptionally producing crippling, invalidism, or death. As a matter of fact it is a disorder attended with a distinct ultimate mortality, and as a rule it persists in its contagious state for months, exceptionally for years; its remote consequences are as serious as those of syphilis, it is much more contagious, and it probably cripples or destroys many more individuals.

It is universally recognized that a large percentage of the pelvic troubles to which women are subject are due to gonorrhea. The majority of sterile, impotent and neurasthenic men thus suffer because of gonorrhea. Arthritis, endocarditis, peritonitis and pyemia may be caused by the gonococcus, and a large percentage of the blind in early life owe their malady to infection from this micro-organism. Burr calculates on the census of 1890 that 5480 people in the United States are totally blind from ophthalmia neonatorum.

The complications and sequelæ of gonorrhea are infinitely more serious, in so far as the numbers affected are concerned, than those following scarlet fever or any of the infectious diseases against the spread of which our boards of health so scrupulously guard.

It is evident, since gonorrhea is dependent upon a specific micro-organism which has been isolated, since in the vast majority of all cases it is conveyed only by sexual contact, and since the symptoms of both the acute and chronic stages of the disease are easy of detection, that vigorous legislation would be even more effective in preventing the spread of gonorrhea than it has proven in the case of other micro-organismal diseases which have been brought under control by quarantine and hygienic regulations.

It may be said without fear of contradiction that in the country at large not even the first blind groping step has been taken in the direction of stamping out this malady. Burr would limit the spread of gonorrhea by:

(1) Thoroughly educating the entire community in sexual hygiene and the dangers incident to departure from the moral law, this teaching being made a part of the curriculum of the public schools and to include public servants in all departments of industrial activity. (2) By allowing the official sanction of marriage only in case the contracting parties could show a properly attested medical certificate of health. (3) By having the laws of the country so amended that proof of transmission of venereal disease would constitute a legal ground for divorce. (4) By making the transmission of venereal disease an act exposing the guilty party to suit for damages or to imprisonment. (5) By having prostitution under medical control and posting means of prophylaxis after exposure in houses of ill-fame. (6) By prohibiting the drug-store treatment of gonorrhea.

Burr holds that the measures thus outlined are practical, and would largely decrease the ravages of gonorrhea.

These suggestions are worthy of careful thought.

As to the educational side of the question, this is a matter not to be disposed of lightly. It is undoubtedly true that both sexes should at some time receive instruction regarding sexual hygiene and the immediate and remote effects of venereal disease. The circumstances under which such instruction should be given, the age which children should reach before they are thus taught, and the selection of the proper persons to convey this knowledge, are all matters for serious consideration.

As to legislative enactments requiring that each candidate for marriage should file a certificate of health showing freedom from hereditary taint, infectious and venereal disease before license could be issued; this is admirable but impracticable; not because it would fail of accomplishing good, but because so large a percentage of the population would then become barred from matrimony that such a law could not be passed.

The amendment of the divorce laws so that conveyance of the disease after marriage would constitute a legal ground for divorce, would lead to infinite confusion and render still more lax our regulations governing wedlock.

Rendering it a criminal offense to impart a venereal disease would perhaps be of some service but would be open to the objection that only those who were utterly abandoned and shameless would be likely to bring action. Under such circumstances the testimony adduced would be practically worthless, since it would usually have for its object the obtaining of money.

There can be no question that the drug-store treatment of gonorrhea should be prohibited.

The question of sanitary regulation of prostitution appears to be one for the public consideration of which this country is certainly not at present prepared. Powerful arguments can be brought not only from the moral but from the practical side against any such procedure. The posting of means of prevention in houses of ill-fame legalized by Government is not to be commended.

Dr. Burr is to be congratulated upon having discussed this subject in a true scientific spirit; even though his suggestions in the main seem impractical, his pamphlet will certainly direct thought in this direction, and ultimately some more or less efficient scheme of prevention may be evolved. One which from its educational aspect would be widely serviceable would be the adoption of a rule upon the part of the Government, railroad managers, and corporations employing large numbers of men, making a part of the examination of those applying for positions a careful investigation of the urine for pus, with rejection of the candidate in case this is found. This would call attention to the persistence of gonorrhea and would make many thousands more careful to avoid contagion and more systematic and persistent in pursuing treatment directed to the cure of the disease when it is once contracted. This, in conjunction with the suggestion made by Burr as to the instruction of young women and men in the public schools, would at least educate the community up to the point of being willing to recognize the existence of the evil and to set to work openly toward finding a practical method of lessening or entirely eliminating it.

## Reports on Therapeutic Progress

### *THE TREATMENT OF COUGH.*

The *Journal des Praticiens* of September 5, 1896, emphasizes the fact that cough, as a rule, is simply a reflex symptom due to respiratory irritation. Sometimes it has its origin in the larynx, sometimes in the trachea or bronchial tubes or even deeper in the lung.

For laryngeal cough, it is often well to

resort to the application of hot baths or sinapisms to the feet, the avoidance of conversation which would irritate the larynx, and perhaps the administration internally of some balsam or opiate or some feeble preparation of aconite.

In chronic laryngitis the cough may be much modified by the inhalation of steam, by the atomization of various medicinal substances, and by gargling with sulphur waters.

Should the cough seem to come from the trachea, and there be associated with it some retrosternal discomfort, a mustard plaster applied over the sternum will be of advantage, and it is well to administer night and morning a pill containing two grains of quinine and one-sixth of a grain of belladonna.

Should the cough arise from difficulty in the bronchial tubes or pulmonary vesicles, opiates combined with such nervous sedatives as cherry-laurel water, belladonna, or aconite, are useful; and if paroxysmal, it is well to add one of the bromides to this mixture. Should there be any expectoration, the employment of any of the balsams, such as the balsam of Peru or even the oil of sandalwood, is of advantage.

It should never be forgotten that cough sometimes arises from reflex irritation due to disease in the nose, the ear, the stomach, or the uterus. Usually such a nervous cough is laryngeal, and local applications or inhalations are practically useless. It is much better to resort to the bromides and to hydrotherapeutic measures. Valerian or the ammoniated valerian are useful under these circumstances. Sometimes, however, in place of nervous sedatives nervous stimulants are of value, and full doses of strychnine, as much as one-twentieth of a grain three times a day, do good. In rebellious cases it is sometimes most advantageous to subject the patient to a change of climate.

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### *EFFECT OF PHOSPHORUS ON GROWING BONE.*

KISSEL (*Virchow's Archiv*, bd. cxliv, 1, 1896) records a series of experiments on dogs with phosphorus during the period of growth. The drug was given in small doses in oil, this method being selected as most near to the usual mode of administration to children. He finds that phosphorus has much stronger toxic properties than is generally supposed, and that a disturbance of digestion during the use of phosphorus, though apparently trivial, may have a fatal significance; ten centigrammes per kilogramme of body-weight caused symptoms of chronic poisoning, with marked atrophic process, where bone was being deposited; six centigrammes per kilogramme hinders the normal development of bone; 3.3 centigrammes per kilogramme is the largest dose that can be given without harm. In chronic poisoning from quite small doses there was marked fibrosis, with shrinking of liver. No dose of phosphorus had any favorable influence on the growing bone. He concludes that there is no evidence in favor of the use of phosphorus in diseases of bone. —*British Medical Journal*, July 25, 1896.

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### *THE APPLICATION OF COLD TO THE THORAX IN CHILDREN.*

*La Médecine Moderne* of August 26, 1896, tells us that BERNARDBEIG of Havre obtains very good results from enveloping the chest of the child in cold wet cloths in the treatment of pulmonary affections associated with high fever, following the method recommended by Gendre, which has already been abstracted in the THERAPEUTIC GAZETTE. A piece of gauze, folded eight or ten times, and still of sufficient width to reach from the axilla to the umbilicus and to completely surround the thorax, is dipped in water at the temperature of the room, wrung out, and applied to the patient's thorax; over it is placed a piece of sheet rubber. The application is renewed, a second compress being in readiness, every quarter- or half-hour until there is a diminution of the dyspnea, the temperature, and the nervous excitation. As a rule, under its influence all these symptoms are markedly ameliorated and no complications occur. Should the temperature persist, the tepid or cool bath is resorted to. As a rule, after the first application the child does not object to their further use.

The compresses are indicated in acute hyperemia of the lung, with marked congestion and venous stasis, in cases of bronchitis, idiopathic or associated with the eruptive fevers. They are also thought to be of value in the treatment of chronic tuberculosis.

Bernardbeig cites cases which show the best results of his application of this treatment. An infant of fifteen months, who was attacked by bronchopneumonia, with a high elevation of temperature, intense dyspnea, and nervous excitation, improved with very extraordinary rapidity after this treatment was instituted. A little girl of two years, with a bronchopneumonia of rapid onset associated

with symptoms of suffocative catarrh, received these cold applications every half-hour, with marked amelioration of the grave symptoms and a modification of the dyspnea. Again, a child with bronchopneumonia, with marked dyspnea and elevated temperature, markedly improved after the fifth or sixth application. The very great advantage of this method of treatment is that the child's stomach is not disordered by the administration of remedies.

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*THE TREATMENT OF PERITONEAL TUBERCULOSIS.*

The *Journal des Praticiens* of September 15, 1896, points out that peritoneal tuberculosis can be treated in several ways. In a certain number of cases surgical intervention is absolutely justifiable; and if there is ascites, opening the abdominal cavity often gives excellent results. On the other hand, it is not to be forgotten that in many young subjects peritoneal tuberculosis often disappears if the patient is put under good hygienic circumstances, receives proper tonics, has counter-irritation applied to the abdomen, and perhaps wears over the abdomen, in place of counter-irritation, an application of iodoform maintained in place by collodion. Simple puncture of the abdominal cavity, with drawing off of the liquid, also gives good results in some cases. In other instances it has been found that rectal injections of creosote were of value.

Thus, one case is quoted of a child of eleven years, whose sister and mother died of tuberculosis, and who was herself attacked in 1894 with enlargement of the bronchial glands, and early in 1895 with abdominal pain, loss of appetite, signs of pleurisy at the left base, and other evidences of tubercular infection; there was no vomiting, but the abdomen was large, painful, and markedly resistant to palpation. The treatment consisted in the regulation of the diet, which was largely liquid, and the application of ichthyol to the abdomen. Later on, from the 7th to the 16th of March, enemas of creosote in an emulsion of cod-liver oil, seven drops to five drachms of oil, were given; from the 16th of March to the 20th of April the quantity of creosote was increased to fifteen minims, and from the 20th of April to the 27th of May to twenty-two minims. At this time an attack of diarrhea necessitated an interruption of the treatment for several days, but up to this period the abdomen had diminished in volume, the hard resisting masses seemed to have been reabsorbed so that the resistance was not so marked to palpation, and by the 25th of June the infant left for the country in a much improved condition, with normal lungs and good appetite; it had gained in weight and become free of pain. It is stated that by the 12th of April following the child was still in good health, had been subjected to the use of sea baths in the south of France, and was considered absolutely cured.

Another child, seven years of age, without bad hereditary antecedents, but who had been attacked with influenza and a severe bronchitis in 1890, was presented for treatment, with signs of right pleuro-pneumonia and general bronchitis, abundant expectoration, febrile involvement, but no abdominal symptoms. A month later, however, anemia was marked, there were signs of dry pleurisy at the right base, the breathing was bronchial, the left side of the abdomen swollen, the belly puffy, and the intestinal coils seemed to be agglutinated. Inunctions of ichthyol were used, and creosote injections in the dose of fifteen minims were resorted to. Under this treatment the symptoms of pulmonary and abdominal disease gradually disappeared, so that two months after the treatment was begun the abdominal condition was much ameliorated, although physical signs of trouble still existed at the right base. The child, however, which had weighed only 17 kilogrammes on the 10th of May, weighed 21½ kilogrammes on the 9th of September; its digestion was also greatly improved, and later on it was subjected to sea baths.

The third case was that of a young man of eighteen years, who was treated in the same way and rapidly improved.

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*LAVAGE OF THE STOMACH WITH SOLUTIONS OF NITRATE OF SILVER.*

In *La Médecine Moderne* of September 16, 1896, an account is given of a method first employed by Forlanini in 1891, which consists in washing out the stomach in cases of excessive hydrochloric-acid secretion associated with chronic catarrh, first with pure water to which has been added in some cases a little soda, then with a liter of a solution of ten to thirty grains to the quart of nitrate of silver, which in turn is immediately followed by a solution of the chloride of sodium of the strength of thirty to forty-five grains to the quart in order to neutralize any excessive action of the silver solution. It is best to commence with a very weak solution of ni-

trate of silver, and gradually to increase its strength. Generally the best results are obtained from solutions of about fifteen grains to the quart. Under this treatment motor power of the stomach is greatly improved, and the quantity of liquid which remains in the organ after the repast is consequently considerably diminished. In one case the liquid diminished from 260 centimeters to 32. As a result, constipation is to a certain extent overcome and the general morbid symptoms disappear, among others vomiting; there is general systemic improvement, the patient gains in weight and muscular power, and nervous disorders and hypochondriasis disappear.

It is asserted that in the treatment of hyperchloracidity of a chronic type, with atony, these washings with nitrate-of-silver solution give better results than any other method of treatment yet tried.

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### *THE TREATMENT OF SIMPLE GLAUCOMA.*

HANSELL tells us in the *Philadelphia Polyclinic* of January 2, 1897, his treatment of glaucoma. He points out that simple glaucoma is essentially non-inflammatory in its origin, course, and termination as compared with true glaucoma in its acute and chronic forms. The main, if not the only, point of resemblance is the excavation of the optic nerve, and it is doubtless because of the presence of this diagnostic sign that the old classification has been retained. There is rarely in its history injection of the ciliary blood-vessels, pain, periodic loss of vision, or other evidence of acute increased intra-ocular tension. The diagnosis of the affection depends, in the main, upon two coincident conditions, namely, gradual diminution of vision, both central and peripheral, and slowly advancing cupping of the nerve-head. But spinal and idiopathic (no assignable cause) optic-nerve atrophy are characterized by similar symptoms. For this reason Schweigger suggested in 1891 that the term "simple glaucoma" should be accepted with considerable reservation. Increased tension, that *sine qua non* of glaucoma, cannot be demonstrated. The enlargement of the pupil is not dependent upon paralysis from pressure of the ciliary nerves that lie in grooves in the sclera, but is found only late in the disease, when atrophy of the nerve is far advanced. Recession of the near-point from failure of the accommodation is not a pronounced symptom. A patient will require a stronger glass for reading than the healthy eye, but only because he needs magnification of the letters, that they may be perceived by the partly atrophic retina. It is not claimed that simple glaucoma should be classified among optic-nerve atrophies, although atrophy is one of its conspicuous features. It differs from them in that the cupping of the nerve-head is inconsistent with the advance of atrophy; that the disk is surrounded by a scleral or white, and not a choroidal or pigment, ring; that limitation of the nasal is more pronounced than that of the temporal field, and irregularly placed and sized scotoma are not infrequent; that it is favorably influenced by myotics and operation. This brief and imperfect enumeration of some of the facts that dissociate the simple or non-inflammatory type of glaucoma from the inflammatory forms and from atrophy of the optic nerve, and place it in a class by itself, are worthy of consideration in the projected treatment of every case. Great diversity of opinion may be found in the writings of clinicians as to the efficacy of the various remedies. Some, among whom may be mentioned Cohn, Abadie, and Simi, agree that the daily use of solutions of eserin sulphate is indicated. The first writer claims to have retained full acuity of vision and normal fields for a period of fourteen years. On the other hand, Nettleship urges iridectomy without delay, and Ramsey as soon as the diagnosis is established. Wicherkiewicz recommends first eserin, then sclerotomy, finally iridectomy. Our own experience is opposed to immediate iridectomy, for the following reasons: (1) Iridectomy on one eye has been known to precipitate an attack of acute glaucoma in the second eye. (2) In order to be of value the artificial pupil should include one-fifth of the iris. The astigmatism consequent upon the corneal incision and the irregular refraction of the extra-pupillary portion of the lens is detrimental to good vision. It not infrequently happens, also, that cortical opacities of the lens coexist with simple glaucoma. (3) Malignant glaucoma, rather indefinitely described by Schweigger, and accurately defined by Friedenwald as a painful and nearly always incurable blindness following the operation of iridectomy for glaucoma, may be encountered. (4) Eserin, a painless application that may be continued for years without danger, is of indubitable value.

The brief history of a case that has been

under observation for five years will serve to illustrate the efficacy of eserin and the uncertain value of iridectomy. Mr. S., aged fifty-two, complained in 1891 of diminution of vision for far and near. Right 20–30, left 20–50, brought to the normal by low-power minus cylinders. Both disks were cupped over their entire surface. The fields were concentrically contracted, but only moderately so. Until very recently vision and fields have remained unaltered through the use of one-half grain solutions of eserin, applied once daily, and the patient has been able to use his eyes without discomfort. A few weeks ago the eserin seemed to have lost its power. Double iridectomy was performed. The healing in the left eye progressed without incident. On the second day after operation on the right, vision was totally abolished in that eye for a short time. The wound was closed, and the anterior chamber reestablished, and the eye very slightly congested. Under hourly instillations of one grain solutions of eserin vision returned to its previous acuity in two days. Here, then, is an instance of retention of vision for four and one-half years by the constant use of eserin, and of an acute glaucoma precipitated by iridectomy.

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### *THE TREATMENT OF ULCER OF THE STOMACH BY SUBNITRATE OF BISMUTH IN VERY LARGE DOSES.*

We learn from *La Médecine Moderne* of September 9, 1896, that KRAMER has reported very good results from the use of massive doses of subnitrate of bismuth in gastric ulcer after lavage has been gently employed, until the water left the stomach perfectly clear and transparent. He injects into this organ a mixture composed of six drachms of subnitrate of bismuth in 200 cubic centimeters of warm water. In the course of five or six minutes the bismuth is deposited over the entire surface of the stomach. These applications are made every two days until a cure is effected, as little food being given by the stomach as possible. The results are said to be remarkable, and in no instance were symptoms of intoxication by bismuth produced. Thus, in nine cases the cure was most rapid; in two others the results were not so good. Altogether, as much as 100 to 200 grammes of bismuth may be used in this manner, without danger of producing symptoms of intoxication. It is needless to add that the bismuth must be absolutely pure. [The only objection to this plan of treatment is that it necessitates the dangerous procedure of introducing a stomach-tube in cases of gastric ulcer.—ED.]

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### *THE TREATMENT OF ATROPHIC CATARRH.*

In the *Medical Record* of January 2, 1897, Dr. JOHN NORTH of Toledo gives the following interesting directions for the treatment of this troublesome affection: The first thing is to clean the nasal cavities of all crusts and to see that they do not form again. Without thorough cleanliness nothing can be done to cure atrophic catarrh. There seems to be a prevailing opinion among physicians that atrophic catarrh cannot be cured; that all that can be done is to keep the nose free from crusts and give the patient temporary relief. Our books and teachers tell us that this is all that can be done.

After a number of years' experience in the treatment of atrophic catarrh the writer is prepared to say that not only can it be relieved but it can be cured in almost every case. It will take long and persistent daily treatment, extending over from one to three years. It is not necessary for the physician to make the treatment during all this time. With proper appliances the patient will be able to do most of the work, calling on the physician only once a week or once in two or three weeks. For the first few weeks the physician should make the treatments.

The crusts should not be removed by force. An atomizer should be used with an antiseptic and alkaline solution. Dobell's solution or some of its modifications can be used for this purpose. Seiler's tablets answer a good purpose, but the writer prefers the following:

℞ Resorcin, ½ drachm;
Sodium bicarbonate, 15 grains;
Sodium biborate, 15 grains;
Glycerin, 1 ounce;
Aqueous extract of hamamelis, 2 ounces;
Water, enough to make half a pint.

The writer has a tablet made containing five grains of resorcin and two grains each of bicarbonate of sodium and biborate of sodium. One of these tablets is dissolved in one ounce of water, or, still better, in a saturated solution of hydronaphthol.

One of the foregoing solutions should be warmed and the nasal cavities thoroughly sprayed with it at least once every day. After the solution has been used thoroughly, the parts should be sprayed with warm vaselin containing ten drops of campho-menthol

and five drops of eucalyptol to the ounce. This treatment should be persisted in till all the crusts come away and are prevented from reforming. Then the patient is ready to commence active treatment. If the case is a mild one and not too far advanced, resorcin is one of the best applications to use. The resorcin wash should be used and then the nasal cavity thoroughly sprayed with vaselin and resorcin (one per cent.). As resorcin is insoluble in vaselin, it is first dissolved in hot glycerin and then mixed with the vaselin; in some cases thymol is also added in the proportion of five grains to the ounce. This treatment will clean the cavities thoroughly, act as a disinfectant, and promote the growth of healthy tissues. In old advanced cases, in which the membrane has atrophied to such an extent as to appear like parchment, with little or no secretion, the writer gets better results with judicious use of trichloracetic acid.

There is no remedy in the entire materia medica that is so useful in the treatment of all nose and throat troubles as trichloracetic acid. Dr. Stein, of Moscow, says that in solution of from 1-to-500 to 1-to-2000 it will keep all suppurative processes in abeyance for a week. In weak solution it is one of the best antiseptic remedies that the writer has ever employed, and it also causes stimulation to atrophic membrane to a greater extent than any other application with which the writer is acquainted.

Dr. Stein says: "Weak solutions of trichloracetic acid used in the nose in simple atrophic rhinitis for a considerable time sometimes produce such a decided hypertrophy of the turbinated membranes that it may become necessary to cauterize them in order to secure free breathing. No other medicine of which the writer is cognizant produces such a remarkable effect, and thus this agent is particularly applicable in the treatment of ozena. In true ozena he now applies stronger solutions than he did at first—*i.e.*, one-half to ten per cent. The odor is not so quickly nor so thoroughly abolished by any other medicinal agent as by the acid. Here it is certainly a specific."

From his use of trichloracetic acid during the past six years North agrees with Dr. Stein in every particular. He keeps a number of solutions of the acid on hand, varying from one to fifty per cent. After the nose is thoroughly cleansed with the resorcin solution, the part is dried with absorbent cotton, and then a two-per-cent. solution is applied on a probe with cotton to the diseased membrane; the strength is increased as the effect becomes less active, spraying afterward with the vaselin and resorcin.

We sometimes find a portion of the mucous membrane entirely denuded of epithelium and in which the glands are all destroyed, leaving a thin, dry layer of membrane covering the bone. In these cases the treatment mentioned will not stimulate the part nor cause new epithelium to cover the atrophic part; it is therefore necessary to stimulate the edges of the diseased part and cause the mobile leucocytes to collect at or near the edges. In time the entire surface becomes covered over with a thin mucous membrane, which after a further interval becomes thicker and furnishes sufficient moisture to prevent the formation of incrustations. In treatment of these cases he follows the method of the horticulturist when he finds a tree denuded of its bark—*i.e.*, blazing. Nature has made an effort to repair the injury by throwing out a secretion around the edges, which organizes and partially covers up the denuded surface by the formation of a thin bark. At this time the horticulturist scratches the edges of the thin bark and nature covers up still more of the surface. If this is continued, in time quite a large space will be covered up with this thin bark, and gradually it becomes thicker and almost removes the appearance of injury.

The writer proceeds as follows: He cleans the part thoroughly with the resorcin solution; then takes a twenty-per-cent. solution of trichloracetic acid and applies to the edges of the atrophic space, not allowing it to come in contact with any other portion of the membrane. This produces slight irritation and causes the nutrient pabulum of the blood and also the mobile leucocytes to collect beneath the coagulated rind formed, and to become organized under its protection. The part should be well covered with solid vaselin and resorcin. If this treatment is followed up from time to time, the part, if not too large, will become completely covered, and the membrane be capable of performing at least a portion of its function. He has treated a number of cases by this method with good results.

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### *LIQUID MALT PREPARATIONS.*

The *Journal of the Boston Society of the Medical Sciences* for November, 1896, contains the following note by HARRINGTON on liquid malt preparations:

Twenty-one different brands of liquid malt

extract were obtained and analyzed. That they were not true malt extracts is shown by the fact that in no one was the slightest diastasic power; all were alcoholic, some being stronger than beer, ale, or even porter. Six contained less than three per cent, five contained between three and four per cent., four between four and five per cent., two between five and six per cent., three between six and seven per cent., and one over seven per cent. of alcohol. In food value they proved to be about equal to heavy beers and porters. In a number of specimens a large amount of salicylic acid was detected, the largest amount being found in one which claims to have been "made in Germany."

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*GALL-STONES AND THEIR MEDICAL TREATMENT.*

In the course of quite an extensive article on this topic published in the *Intercolonial Medical Journal* of Australia of October 20, 1896, R. B. Duncan points out that the medical treatment of gall-stones is eminently unsatisfactory from whatever point it is regarded. It is quite true that, during the paroxysm, we can generally afford relief by means so well known that they need not be alluded to. The real question arises as to our ability to act on the gall-stones themselves, and rid the patient of their dangerous presence. Is it possible for us either to prevent the formation of the stones themselves, to effect their solution, or to promote their discharge? There is no doubt whatever that timely and careful treatment can do much to prevent the formation of biliary calculi, but the writer's experience leads him to believe that we are seldom consulted at a stage when our efforts in this direction would be of much avail. If we are called upon to treat such a case, then exercise undoubtedly is to be warmly commended, not taken indiscriminately, but graduated exercise after meals; this favors the flow of bile at a time when its secretion is most active. Perhaps of scarcely less importance is massage in the neighborhood of the gall-bladder and common duct. If these measures are supplemented by warm alkaline baths, a sufficient amount of attention will have been paid to the hygienic aspect of prevention. No treatment can be of much avail, from this point of view, unless strict attention is paid to the diet. Bearing in mind the causes which may lead to an excess of cholesterin in the bile, and also the condition of the bile favorable to its deposition, one or two important principles may be laid down. Meat, for instance, should be taken in the strictest moderation, and fats and sugars at the same time entirely excluded from the dietary. Moderation must also be observed in regard to farinaceous substances. Two articles of this nature are singularly unsuitable, namely, peas and carrots—the former containing a substance similar to cholesterin, and the latter a form of vegetable cholesterin itself. It is not often, however, that we are able to anticipate the formation of such concretions by any such advice, as cholelithiasis is generally a recognized fact when our opinion is sought on the matter.

The purely medical treatment of this affection has at all times excited a considerable degree of interest, and the remedies recommended at one time or another have been more distinguished for quantity than efficiency. It would serve no useful purpose were we to enumerate the various remedies that have been recommended in this affection. There cannot be any possible doubt that a course of alkaline treatment has been attended with benefit, not only in expulsion of the stones, but in preventing their formation. The histories of such Spas as Carlsbad, Vichy, Ems, Kissingen, and others, afford ample evidence on this point. It must be remembered, however, that such a course of treatment combines the use of alkaline baths as well, and a rigid dietary. Whilst this is of no practical value to practitioners far removed from these resorts, still the lessons that such courses of treatment inculcate can be to a certain extent imitated. An alkaline course of treatment renders the bile more alkaline and watery—a state conducive to the disintegration of stones already formed, and to their prevention. Whilst there can be no doubt as to the beneficial action of alkaline mineral waters, their mode of action would seem to be chiefly that of expulsion, as careful examination of stones passed under such a course of treatment shows little or no chemical action. This statement, however, still wants elucidation. The experience gained at some of the above mentioned resorts is conclusive as to the curative value of such waters if taken over a long period of time and repeated at intervals. When it is desired to imitate the action of the above mineral waters, the bicarbonate of sodium and sulphate of sodium may be used, separately or in conjunction. Their method of administration will depend on so many circumstances that it is unnecessary to enter into particulars. It may be

said, then, that alkaline remedies, administered under such conditions, remove "acidity of the stomach, correct any congestion of the liver that may be present, and render the biliary secretion more watery and alkaline." By this means formation is anticipated, and when this has taken place the stones are acted upon chemically, and their expulsion also promoted.

There are one or two subsidiary remedies that demand a passing notice. Much attention has been paid at times to a remedy composed of three parts of sulphuric ether and two parts of oil of turpentine. Of this, the patient should take four grammes every morning until 500 grammes of the mixture have been taken. This remedy has, in some instances, received unqualified praise, and in other instances has been as unsparingly condemned. Some of its beneficial action is ascribed to its antispasmodic effects. The most extravagant claims have been made regarding the solvent action of chloroform on gall-stones, but these have not stood the test of time and experience.

A remedy which is largely used at the present time is olive oil. Opinions regarding it are extremely conflicting. The writer has tried it repeatedly, but with absolutely no success except in one instance. As the case is rather a striking one he reports it. The patient was a lady sixty-two years of age, and extremely stout. The diagnosis of her state was rendered easy by the early discovery of gall-stones in her motions. He has never had a case in which the suffering was so severe—indeed, terrible. During the paroxysms she was rendered almost frantic, and large doses of morphine had to be administered to give her relief. Every likely remedy had been tried in vain, and more for the sake of doing something than because of any benefit that was expected, olive oil was ordered. Its administration was commenced during a paroxysm, and the effect was nothing less than marvelous. From the moment of its administration the symptoms rapidly subsided, in the course of a few days disappeared altogether, and have not since returned, a period of nearly twelve months intervening. Soon after she began to take the oil the patient declared that she was passing large numbers of stones. An examination easily disproved this statement. She was passing numbers of concretions certainly, but they were not gall-stones. In this instance a beginning was made with two ounces of the oil twice daily, rapidly increased to half a pint. The oil was taken without a single drawback, and the relief was immediate and permanent. Of its mode of action little is known, but it is thought to act chiefly as a cholagogue.

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*DIAGNOSIS OF PUERPERAL INFECTION.*

B. C. HIRST, in the *University Medical Magazine* for November, 1896, writes a valuable paper on this subject. He directs that an antiseptic vulvar pad should be worn during the continuance of the lochial discharge so as to protect the genital orifice from contact with the atmosphere; and the materials of which this pad is composed, or rather the antiseptics with which it is impregnated, should be chosen with a view of keeping the bloody discharge from decomposing should it soak through the pad, and thus be exposed to atmospheric contamination. The best materials for this purpose in the writer's experience are salicylated cotton and carbolized gauze.

The water for douches, if they are employed, or for washing off the vulva and perineum, may be the source of fatal infection. All the water used about a puerpera should be boiled beforehand for at least half an hour. It is not sufficient to make a germicidic solution—as for example of corrosive sublimate—in the belief that all germs in the water are killed by the antiseptic employed. Tetanus bacilli will live for hours in a 1-to-4000 bichloride of mercury solution, and the other antiseptics usually employed in obstetric practice,—lysol, kresol and creolin—may be perfectly inert against many dangerous pathogenic germs during the time that usually intervenes between the preparation of an antiseptic solution and its use upon a patient. He has seen three women contract tetanus from intra-uterine douches of unboiled water (creolin two per cent.) during a time when the water of Philadelphia was unusually turbid in consequence of freshets in the Schuylkill Valley.

The puerperal woman may be infected by disease-germs carried upon her person, especially in the pubic region; by her personal clothing, by the bedclothing and mattress, by the vulvar pads and the pads upon which the buttocks rest, by the material used to wash off the vulva and perineum, and especially by pathogenic bacteria lodged in the vaginal or uterine mucous membranes before labor or even prior to conception.

To insure the greatest obtainable degree of personal cleanliness, the woman falling in

labor should be given a full bath, special attention being paid to scrubbing the genital region most thoroughly with soap, hot water, and a soft bristle brush or a wash rag. After the bath the woman should put on clean clothes throughout. The mattress on her bed should not be soiled by the discharges of previous labors, by urine, feces, or other putrescible matter. It should not have been used in any case of contagious or infectious disease, and it should be protected by a rubber cloth that has been carefully scrubbed clean. The bedclothing should be clean, the bed being freshly made up for the labor. The pads on which the buttocks rest during labor and afterwards should be made of nursery cloth, prepared in the way described in the writer's directions to the nurse (boiled and dried). It is scarcely necessary to say that a pad when soiled should be thrown away and not used again. The vulvar pads should be made of carbolized gauze and salicylated cotton, the best materials for disinfecting a bloody discharge. The nurse should make them up with sterile hands as they are required, or, if she makes a number at a time, they should be wrapped in a clean towel and taken out for use with sterile hands. The materials used to wipe off the genital orifice, the mouth of the urethra, and the perineum should be absorbent cotton soaked in a 1-to-1000 solution of sublimate for at least a half hour before its use. During the second stage of labor these pledgets of cotton are employed to wipe away feces as it emerges from the anus, always in the direction from before backward.

Care must be exercised to remove blood and blood-clots from the vulva before putrefaction sets in. This is best done by placing the woman on a bed-pan, letting a stream of boiled water run over the parts, and if necessary using cotton to wipe them off. This should be done about six times in the twenty-four hours, for the first four or five days, and then two or three times a day until the discharge ceases.

A careful examination should be made of every woman's vaginal discharges in the beginning of labor. If there is leucorrhea or any pathological condition of the vaginal secretions, the vagina should be thoroughly scrubbed out with tincture of green soap, hot water, and pledgets of cotton, and should then be douched with a bichloride of mercury solution 1-to-2000, a little clear water being employed at the end of the douche to wash out any residual sublimate solution that might poison the patient, or do harm to the infant's eyes in its descent through the birth-canal.

It should be borne in mind in the conduct of the labor that excessive bruising, long-continued pressure of the maternal tissues, extensive injuries, all conduce to microbic invasion of the parts by reducing their vitality and by affording, through solutions of continuity, a ready entrance into the system. The proper conduct of labor, therefore, is an extremely important item in the preventive treatment of puerperal sepsis.

Finally, in the management of the third stage of labor and of the early puerperium the greatest care should be exercised to evacuate the uterine cavity of all putrescible matter, and to secure as far as possible firm contraction of the womb. The presence of dead foreign matter within the uterine cavity will pretty surely attract saprophytes, and an imperfect involution of the womb will favor the direct invasion of the uterine sinuses and blood-channels by micro-organisms, and the absorption of the products of microbic activity into the circulation and into the lymph-spaces.

The physician should not carry infectious germs upon his person or clothing into the lying-in chamber, and he should be scrupulously careful not to insert pathogenic germs into the woman's vagina in the course of his examinations. If a general practitioner is in attendance upon infectious and contagious diseases, he should either give up obstetric practice entirely, or, if he cannot do so, he should take a full bath and should change his clothing completely before attending a woman in labor.

It is a wise precaution to carry in one's obstetric bag a long linen gown, or a pair of duck trousers and a cheviot shirt. The change of clothing should be made in another room before seeing the patient at all, or at any rate before making an examination.

In the preparation of his hands for an examination the method recommended by Fürbringer is to be preferred. This consists in a ten-minutes scrubbing of the hands with a nail-brush, hot water, and tincture of green soap, followed by a most thorough scrubbing with alcohol, and this followed by immersion of the hands in a 1-to-1000 bichloride of mercury solution for at least two minutes. The examining finger should then be anointed with carbolized vaselin (five per cent.), and in making the examination the vulvar orifice should be exposed by lifting up the

upper buttock as the woman lies upon her side so that the finger can be inserted directly into the vagina without becoming contaminated by being swept over the skin near the anus or pubes while searching for the vulvar orifice. As every examination entails upon the woman some risk of infection, they should be limited in number as much as possible. The best results ever obtained in obstetrical practice as regards both morbidity and mortality have been secured by an almost entire elimination of the vaginal examination, which has been replaced in the practice of some enthusiasts by abdominal palpation, and even by rectal examination. It is unnecessary, however, and is moreover inadvisable, to give up the vaginal examination altogether. Much may be learned by abdominal palpation, so that there is little necessary information to be gained by examining per vagina, but there are some conditions that can be learned in no other way. A few vaginal examinations in the course of labor are therefore indispensable. No harm is done by these if their number is restricted, and if sufficient care is exercised to secure perfect cleanliness of the hand, and to conduct the examination in the way described above.

The nurse should adopt the same precautions in regard to personal cleanliness that have been recommended for the physician. She should not have come from a contagious or infectious case. She should put on fresh clothing throughout for attendance upon the obstetrical patient. She must take a full bath, scrubbing her hair and scalp well with soap and water, and rinsing her hair in a 1-to-1000 sublimate solution, which is then washed off with pure water. Her hands should be carefully prepared according to the method above described before any manipulations of a patient's genital region or of her breasts. It would be her duty, also, in the care of a puerpera, to enforce the sanitary and aseptic regulations already described under their appropriate heads.

All implements to be used about the person of the parturient and puerperal woman should be boiled for at least five minutes. In the case of a few articles that might be injured by boiling water, a bichloride solution 1-to-1000 should be employed for their disinfection; a full half-hour at least being allowed for the immersion, and the bichloride solution being made up with boiled water.

The treatment of puerperal sepsis is both local and general. Locally, a thorough disinfection of the whole genital canal is called for in every case of puerperal infection. It may appear unnecessary, and may prove on actual experience to be even harmful, but no one can tell beforehand how necessary this procedure will be. In the vast majority of cases it will be productive of the greatest good. It is only occasionally useless and very rarely actually harmful. It should, as already stated, invariably precede all other treatment for puerperal infection. The method of disinfecting the genital canal may be described as follows: a double tenaculum, a large, dull curette, a placental forceps, and an intra-uterine catheter are boiled for fifteen minutes. The operator disinfects his hands and arms. The patient is placed in the dorsal posture across the bed, with her buttocks resting on a rubber pad. The external genitalia and the vagina are scrubbed with tincture of green soap in hot water, and pledgets of cotton; the vagina is douched with a sublimate solution, 1:2000. The operator then seizes the anterior lip of the cervix with the tenaculum. An intra-uterine douche—sublimate solution, 1:2000—at least a quart, is administered. Then with the curette and the placental forceps in turn the uterine walls are gone over thoroughly in all directions, six to twelve times, till nothing is brought away but bright blood; a second intra-uterine douche concludes the treatment.

If the womb is flabby and large, with a tendency to flexion, so that the drainage of the uterine cavity is not good, he recommends packing the cavity with iodoform gauze. He has found it of advantage in the majority of cases to pump into the uterine cavity by means of a Davidson's syringe and a two-way catheter a mixture of two drachms of iodoform and two ounces of sweet oil.

In addition to cleansing the uterine cavity in the manner described, the operator should take the opportunity of carefully inspecting the visible portion of the parturient tract, and if on the cervix or in the vagina there are false membranes or areas of inflammation and localized infection, these should be carefully treated; best by the application of a strong solution of nitrate of silver, a drachm to the ounce.

It may be necessary to repeat the intra-uterine douches several times—in fact, several times a day for many days; in this case plain water only should be used. Nothing whatever is gained by the employment of strong chemical disinfectants which cannot

always reach and destroy the infecting micro-organisms of the genital tract, but which do have a most depressing action upon the body-cells of the walls of that tract, reducing their resisting power against the invasion of attacking bacteria.

It is rarely necessary to repeat the curettement or the use of the placental forceps. It may be advisable to provide drainage from the uterine cavity by the insertion of a strip of gauze to the fundus. This is only necessary, however, in those cases of flabby, relaxed wombs which fall forward on themselves in such a manner as to prevent the free exit of the lochial discharge.

The general treatment is stimulating. The patient should have as much food of an easily digestible character — chiefly milk — as she can digest, and as much alcohol as she can consume without showing the physiological effects of it. Digitalis will be useful as long as the pulse is above 110; strychnine may be combined with it in suitable cases. To tide the patient over emergencies, carbonate of ammonia in large doses by the bowel, and nitroglycerin hypodermically may be required. Inhalations of oxygen may be of service. Absolute rest and freedom from all disturbances, mental and physical, must be insisted upon, and the patient should be given the best nursing that the family can afford.

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### *A CASE OF ASPHYXIA DUE TO ETHER ABSORBED FROM THE STOMACH.*

Lorot reports in *La Tribune Médicale* of November 25, 1896, the following case:

A girl aged 9½ years was admitted to the Hospital Tenon in a state of asphyxia. The face was pale, the lips blue, and the whole appearance of the patient that of exsanguination. The extremities were cold, the fingertips were also pallid. Auscultation revealed no respiratory sound, no cardiac bruit, and there was absence of the pulse. It was found on investigation that the patient had taken a large quantity of ether internally.

Artificial respiration was resorted to and massage of the precordium was tried, with no result. There was an abundant muco-watery secretion in the mouth and the tongue had been injured by the spasmodic contraction of the jaws. Rhythmical traction of the tongue was resorted to; cold applications were made to the forehead and the neck; flagellations, friction and stimulation of the intercostal nerves were also tried. After about twenty-five minutes a single respiratory movement took place. The respirations then became irregular, the heart's action somewhat violent and tumultuous, the pulse became stronger and extremely rapid; color returned to the skin and heat to the extremities. Whenever the treatment was interrupted, however, the respiration ceased and the patient returned to a comatose condition. The conjunctiva was without a reflex, the eyes wide open, and the pupil dilated, but slight tonic movement of the left side occurred. Thus there was a unilateral grimace of the face, contraction of the arm and leg on the left side with tremor; the right side was immovable. These tremors of the left arm ceased on inhalations of ammonia being given. Finally, the patient returned to consciousness with a gradual passing away of the symptoms that we have named. Lorot believes that the method of Laborde—namely, the application of rhythmical tractions of the tongue—saved the patient's life.

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### *TREATMENT OF LARYNGEAL TUBERCULOSIS.*

In an article in the *Cincinnati Lancet-Clinic* of December 5, 1896, S. E. Allen states that although a large per cent. of our cases of laryngeal tuberculosis cannot be cured, all can be alleviated, and treatment must have in view the desire to alleviate if a cure cannot be brought about. We must not abolish therapeutic methods, even if a cure is out of the question.

Any general plan of treatment of the affection under consideration can be divided into three heads: (1) The treatment of the general system. (2) Absolute rest of the parts —measures instituted to keep the larynx absolutely at rest. (3) Local measures.

The general treatment is the same as that of tuberculosis elsewhere. By tonic remedies, good feeding, and climatic influences, we seek to strengthen the resistance of the cells to the invasion of the organism; and just as such treatment can bring about a cure of pulmonary tuberculosis, so it can bring about a cure of mild laryngeal disease. The climatic treatment is our mainstay in pulmonary tuberculosis, and I am inclined to believe that it, with the methods considered under headings 2 and 3, will be found to render the greatest service in laryngeal tuberculosis. If the bacilli are deep in the tissues they cannot be reached except by most energetic surgery, and our only hope is that we can increase cellular resistance and prevent further exten-

sion. Fresh dry air and sunlight, proper food, and healthy exercise of mind and body, together with proper local treatment, will often work wonders in this disease.

Absolute rest of the parts will be found one of the greatest aids toward curing laryngeal phthisis. General and local methods will often fail if the patient cannot be made to stop using his voice. This is a point too little insisted upon. Movement of any abnormally irritated part lowers the vitality of the cells of that part, and so movement here depresses cellular vitality and allows increased bacterial development. Use of the larynx in speaking must be stopped, and also those movements caused by coughing. The cough arising from the laryngeal trouble and the concomitant pulmonary disease must be checked if good results are to be expected. This relief can be brought about by morphia, codeia and the like, but such remedies are bound to lower cellular vitality and to undo what we seek to gain by constitutional treatment. There is no surer or better way to relieve the cough of laryngeal tuberculosis than by the use of menthol; one-half to one drachm of a mixture of camphor and menthol, five grains each to the ounce of albolene, injected directly into the trachea from a laryngeal syringe, if possible, or into the larynx alone if we cannot drop the solution past the vocal cords, has a remarkable effect on the cough. If it is impossible to make these injections, a much less marked result can be obtained by inhalation of the vapor of the same mixture. Should the lungs be markedly involved, with considerable purulent expectoration, menthol, guaiacol and albolene make a good injection. The menthol and guaiacol injections have a local antiseptic action, and under the influence of these mild remedies many cases of beginning tubercular ulceration can be cured.

We come now to the consideration of local measures. These can be classified into:

Simple antiseptic, non-irritant applications;

More active germ and tissue-destroying agents, including lactic acid applications;

The use of electrolysis and the galvanocautery; and, lastly,

Excision of diseased tissue with curette or cutting forceps.

Among non-irritant, simple applications the best are menthol inhalations, iodol and iodoform insufflations, and pyoktanin applications. In cases of slight severity, with the best hygienic treatment, these remedies often suffice to bring about a cure. Lactic acid is properly considered the best remedy for promoting the healing of tubercular ulceration, and is applied in strengths varying from twenty per cent. up to the pure acid. Lactic acid probably has more cures to its credit than any other remedy.

In all cases where we have a tubercular infiltration without ulceration, or where the ulcer is deep, the lactic acid cannot be expected to exercise the healing action which it has on superficial ulcerations, and it is here that surgical procedures must precede its application. It is from a surgical treatment of the trouble that we have obtained the most startling results. Since the introduction of ordinary surgical methods tubercular laryngitis has to a certain extent ceased to be the hopeless, terrible affliction of former years. Up to the year 1883 it was thought that tubercular destruction in the larynx never cicatrized, that such a thing as a cure was impossible. In that year Krause demonstrated on a post-mortem specimen cicatrices he had brought about with lactic acid; the desire to get the lactic acid solution on to the seat of the trouble led to curettement and removal of the infiltration. Excision of tubercular masses and curettement of ulcerated surfaces is, in selected cases, a procedure that cannot be recommended too highly. This, with the subsequent application of lactic acid, has often a wonderful effect.

Relapse and progressive destruction of course are very often met with; nor is this to be wondered at when we remember the nature of the disease. If these methods do not cure in all cases, they nearly always serve to alleviate the distressing symptoms. The excision of an inflamed and sensitive epiglottis or ary-epiglottic fold will relieve dysphagia as nothing else will, and is to be recommended even when there is no hope of a cure. Where the symptoms complained of are not particularly distressing, and from the nature of the pulmonary trouble no hope of recovery can be entertained, aggressive surgical interference can hardly be recommended. Reaction to surgical interference is slight, as a rule, and it is often surprising to see how quickly healing takes place.

When the disease causes marked stenosis it has been found better to perform tracheotomy than to try to remove the obstruction through the natural passages. After tracheotomy the enforced rest often causes a marked subsidence of the infiltrations. Some have even recommended tracheotomy as a means of curing laryngeal phthisis.

In advanced cases we often can do nothing more than alleviate with opiates if pain is constant, with cocaine if pain is present only on swallowing.

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### *THE TREATMENT OF PERITONEAL TUBERCULOSIS BY PUNCTURE AND LAVAGE WITH HOT STERILIZED WATER.*

In the *Journal des Praticiens* of November 28, 1896, is an article with this title, in which attention is called to the fact that DEBOVE has employed puncture, followed by lavage with a saturated hot watery solution of boric acid, with success in a number of cases. He has been followed by Caubet and Baylac in similar instances by the employment of puncture and irrigation, except that these latter clinicians have employed sterilized water a little above the temperature of the body. They claim by this means that all the advantages of a laparotomy are obtained without exposing the patient to the dangers of that operation, and that the employment of pure hot water is safer than the use of a liquid containing a medicinal substance. The heat exercises a useful influence upon the peritoneal wall, upon the activity of the leucocytes, and upon the capillary circulation in these parts. Should there be much fluid in the peritoneal cavity before the operation it should be withdrawn by ordinary paracentesis before the lavage is attempted. They also think that this method is particularly valuable in chronic fibrinous peritonitis with ascites.

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### *A REPORT ON ANARCOTINE.*

In the *British Medical Journal* of September 26, 1896, SURVEYOR makes a report on this substance.

The work was undertaken to determine the influence of the alkaloids of opium, chiefly anarcotine, on metabolic changes produced in animals. At one time, before the introduction of quinine, this alkaloid was largely used as an antiperiodic. In India, however, as stated by Sir William Roberts in his presidential address before the Pharmacological Section of the British Medical Association, it has now been altogether discarded.

The general impression at present about the value of the drug is that it is a harmless principle of opium. Experiments were performed to determine its effect in diminishing or increasing metabolic changes in dogs. Blood-pressure experiments were also performed on dogs. However, it was found that a subcutaneous dose of the chloride of anarcotine, even to the extent of four grammes, had no effect on the blood-pressure or the heart. The respiratory movements of the animals were not altered. Respiratory changes of gases before, during and after injection of the chloride were studied in mice. It was found that a subcutaneous injection of 0.016 gramme of anarcotine chloride per body weight of 100 grammes produced diminution of the amount of $CO_2$ given off by the animal; the amount of oxygen absorbed was also slightly diminished. The respiratory ratio was not much altered. The animals lost weight during administration of the drug, which was soon regained on stopping it.

Administration of pure anarcotine to dogs in doses of one gramme produced vomiting within half an hour. The smallest dose required to produce this effect was 0.5 gramme per body weight of five kilogrammes.

Anarcotine chloride (one gramme) produced slight retching in one dog, while subcutaneous injections of the salt up to four grammes in an anesthetized animal did not produce any effect.

It is curious that a perfectly tasteless alkaloid like anarcotine should produce vomiting, while its chloride, which is extremely bitter in taste, can be tolerated to a greater extent.

The chloride was prepared from the alkaloid by the action of just enough hydrochloric acid. The resulting salt was dissolved in distilled water, filtered, evaporated down to dryness, dissolved in chloroform, and crystallized out from the chloroform solution by the addition of anhydrous ether. The crystals were redissolved and recrystallized salt used for the experiments.

As regards the effect of the alkaloid on metabolism, great difficulty was met with in the matter of diet. Some dogs refused to take the ordinary dried meat, so it was ultimately decided to feed them on sterilized meat. Minced meat was weighed in small beakers, and these sterilized at 120° C. in the autoclave. During the administration of the drug the animals lost weight, and the nitrogen absorbed was found to be diminished; in one case it fell to one-third the normal amount. The amount of fat absorbed was also diminished to some extent.

The amount of water excreted as urine did not appear to be regularly influenced, however; as a rule it was increased, and on some

occasions it was found that the total amount of water excreted both as urine and in feces was in excess of the amount taken on the corresponding day. This observation requires further study before one can venture to state anything definite about it. There was slight diminution in the amount of nitrogen excreted by the kidneys.

The metabolic changes after the administration of hydrochlorate of morphine were studied in one dog. The dose given was 0.05 gramme to 0.02 gramme per five kilogrammes body weight. In this case the animal was very restless; it took very little food, and lost weight; the amount of weight lost, however, did not correspond to the nitrogen and fat excreted during the same period. In fact, although very little food was taken, the weight lost was not considerable. This can be accounted for in this case, and also in cases of anarcotine experiments, by the fact that the amount of nitrogen excreted by the kidneys was also diminished to a great extent.

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### *THE USE OF SEDATIVES AND HYPNOTICS IN THE TREATMENT OF INSANITY.*

In the *British Medical Journal* of September 26, 1896, OSWALD, in opening the discussion on the use of sedatives and hypnotics in the treatment of insanity, commented on the very different views held as to the usefulness of sedatives by alienists and on the degree and frequency with which they were prescribed in different asylums. He believed that a drug-induced sleep was often bought at too high a price; and he regretted that in the construction of asylums more attention was not paid to specially arranged rooms where all the external causes of sleeplessness would be minimized. He regarded any indication of failure of strength as the chief symptom making urgent the procuring of rest in acute cases, and laid special stress on the necessity for making sure that the absence of sleep was not due to some peripheral irritation. Taking acute cases generally, his experience led him to prefer paraldehyde. It had no bad effects, and it tended to restore the broken sleep-habit. It had a slightly diuretic action as well, and did not depress. He had given it hypodermically in two cases without local inflammation following. It was unfortunate that in the rush for new drugs so many of the older sedatives and hypnotics had been forgotten. How often was conium juice prescribed now, and was digitalis as often used as its calmative power undoubtedly deserved? He believed it was one of the dangers to guard against—namely, that of falling into the habit of using one or two sedatives to the exclusion of others. Chloral, especially when combined with one of the bromides, was most useful as a day sedative —a term to which he took exception. It might not be as effectual as sulphonal, but its bad effects were fewer. The bromides, when combined with cannabis indica or hyoscyamus, could be pushed to much larger doses than were generally given, and were powerfully sedative. Sulphonal he used as seldom as possible, believing that its action was accompanied in many cases by a destruction of the red blood-corpuscles. The belief that its administration produced a mild dementia was a growing one. Its value in chronic mania was undoubted, but its use tended to mind-weakening; it cut short periods of excitement, but the patients did not regain mental clearness. Morphine was not so useful as opium, and his experience of hyoscine and hyoscyamine was not favorable. He confessed he had failed to come, in a very limited experience, to any definite conclusion regarding the use of these drugs. Useful they were, but not nearly so essential to the treatment of patients in an insane hospital as many supposed. A diminution in the frequency with which they were prescribed would lead to the development of other means for treating the symptoms for which they were given. They were not the best hypnotics and sedatives. These were found in exercise, work, distraction of thoughts, amusement, and such like, but the scope of the discussion did not include these. In the treatment of the insane in private houses their use could often not be avoided, and if they did—as he believed—in many cases retard recovery he saw in that a strong argument for the treatment of mental disease in asylums. In asylums when they had to be used he preferred a pure hypnotic like paraldehyde or alcohol, and in other cases chloral with bromide, or bromide with cannabis indica. Sulphonal he never gave without feeling that he might be setting up a morbid condition over which he would have little control.

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### *REPORT ON THE ACTION OF DRUGS ON THE LEUCOCYTES OF THE BLOOD.*

GEORGE WILKINSON, in the *British Medical Journal* of September 26, 1896, records the results of his studies on this subject. He

points out that during recent years several observers have recorded certain changes which take place in the number of the leucocytes of the blood of animals after the injection, either subcutaneously or directly into the circulation, of bacteria, bacterial products, nuclein, peptone, and other substances. Acting on the suggestion of Professor Boyce, he has performed a series of experiments with a number of drugs, which were administered to rabbits by hypodermic injection, with the object of observing any changes that might occur, not only in the total number of leucocytes in the circulating blood, but also in the relative proportion of the mononuclear and polynuclear varieties.

The following drugs have been used in the experiments: Potassium iodide, pilocarpine nitrate, atropine sulphate, digitalin, carbolic acid, turpentine, camphor, antipyrin, quinine hydrochlorate, salicin, and sodium salicylate. With each drug several experiments were made and various doses employed. Blood was obtained by pricking the animal's ear, and after dilution with Toison's solution the corpuscles were counted with the Thoma-Zeiss apparatus, every precaution being taken to avoid fallacy. The corpuscles were counted immediately before, and at various intervals after, each injection; and at the same time cover-glass preparations of the blood were made and afterwards stained, usually with eosin and hematoxylin. From the latter the proportion of mononuclear to polynuclear forms was estimated by counting from 300 to 500 leucocytes.

The general results of the experiments may be stated thus: The first effect of the injection is to cause a diminution in the number of leucocytes per cubic millimeter. The degree and duration of the diminution varies with the drug employed, but with all those mentioned above, unless the dose was very small, its occurrence was recognized when the blood was examined sufficiently early. As a rule it was not of long duration; but a notable exception occurred in the case of one of the experiments with quinine hydrochlorate. A large dose (0.7 gramme) of this drug caused death of the animal two days after the injection; the blood was examined frequently between the time of injection and its death, and on every occasion the scantiness of the leucocytes was very striking. Coincidently with the diminution in the total number of leucocytes, there was a distinct increase in the proportion of the mononuclear to the polynuclear varieties.

Following the diminution there was observed in the case of all the drugs employed an increase in the number of leucocytes per cubic millimeter. This change did not occur in the above mentioned experiment, in which a very large dose of quinine was administered, but with smaller doses of this drug its occurrence was noted, although, as with salicin and salicylate of sodium also, the degree of increase was slight in comparison with that which followed the injection of the other drugs. With nearly all of them the increase was a much more evident phenomenon than the preceding diminution, and was of much longer duration. It was further constantly distinguished by the fact that the polynuclear leucocytes were relatively more increased in number than the mononuclear forms.

With atropine, and also with pilocarpine, a series of injections were made on one animal at intervals of twenty-four hours for several days. The leucocytes were counted immediately before, and at frequent intervals after, each injection. The first injection of each series was followed by a diminution in the leucocytes per cubic millimeter, which again was rapidly succeeded by a marked increase. The latter had not passed off at the end of twenty-four hours, when the next injection was given, but the sudden fall which followed each injection was very striking, as were also the coincident changes in the relative proportions of the mononuclear and polynuclear leucocytes. Indeed the alterations were so distinct that they could be recognized almost by a glance at the stained films, which were made at the same time, without counting at all. These changes in the number and relative proportions of the leucocytes are analogous to those which have been described by several observers as occurring after the introduction into the circulation of bacteria, bacterial products, etc. Sherrington has described similar changes in the blood of dogs and cats as the result of acute local inflammation.

The writer has also observed certain changes in the structure of the leucocytes under the influence of repeated doses of pilocarpine. Two grains of this drug was given hypodermically every twenty-four hours for seven days to one rabbit, and for fourteen days to another. Numerous cover-glass preparations of the blood were made at different times of each day, and they were stained in series by different methods, care being taken that all the specimens of a series were exposed to stain-

ing fluids of the same strength and for the same length of time. These specimens exhibit a remarkable change in the structure and staining reaction of the small oxyphile leucocytes. The cells of this variety in the normal rabbit are full of very definite granules which stain readily with eosin and other acid dyes. Under the influence of the repeated doses of pilocarpine the granules became gradually less distinct, and eventually the protoplasm appears perfectly homogeneous and takes up the stain very feebly. In one of the animals this change was found to be very pronounced in so short a time as fifteen minutes after the first dose of the drug. The reaction of the nucleus of this variety of leucocyte to nuclear stains becomes diminished in a corresponding degree. On the other hand, the large oxyphile leucocytes with coarse granules (Ehrlich's eosinophile cells) show no change whatever, and stand out in marked contrast to those of the other variety. The red blood-corpuscles are also unchanged.

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### *THE TREATMENT OF VOMITING IN TUBERCULOSIS.*

In the *Revue de Thérapeutique Médico-Chirurgical* of December 1, 1896, MATHIEU is reported to have recommended the employment of the following treatment in this troublesome condition. He first points out that the vomiting largely depends upon the fact that the stomach is reflexly irritated from the pneumogastric nerve by the diseased condition of the lung. For this reason small pieces of ice or one to two teaspoonfuls of chloroform water may be given every ten minutes for several days, to allay gastric irritability after food is taken. After the meal the following mixture may be given:

℞ Menthol, 3 grains;
Syrup, 5 ounces.

The chloroform, however, constitutes the most efficacious form of medication.

In the discussion which followed Mathieu's paper, Ferrand stated that he had gotten the best results from diminishing the sensibility of the pharynx by the application of ten-per-cent. solutions of bromide of potassium in glycerin.

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### *SUCCESSFUL CÆSAREAN SECTION AFTER DEATH.*

There can be no doubt that the aim of the obstetrician is to save both mother and child. When there is any difficulty about the rescue of both, the mother must first be considered. When the mother is already dead the child is usually dead also, but this is not invariably the case. The medical attendant should certainly save the child if he can, but for obvious reasons he may be prevented, especially in private practice. The patient's relatives may well feel more respect for a corpse than solicitude for an unborn infant. Yet it is well to remember and to remind them that the child may be saved. In the obituary notice of Dr. Harley, mention was made of his success in saving a child after the mother's death. The patient was suffering from mitral obstruction and aortic regurgitation; there was anasarca, but it would appear the urine had only been tested once, ten days before death, and no albumen was detected. The kidneys were found "full size and quite healthy." On April 25, 1850, the woman, in the beginning of the ninth month, had a fit of dyspnea in the kitchen of the Edinburgh Royal Maternity Hospital. Harley, then house surgeon, diagnosed spasm of the glottis, and performed laryngotomy. The dyspnea increased, and he was beginning the operation of tracheotomy when the patient died. He immediately tore through the patient's dress, opened the abdominal wall and the uterus, seized the child by the leg, and delivered it. It was in a state of suspended animation; cold water, inflation, and artificial respiration revived it, and the cord was cut. The child was a male weighing 6 pounds 12 ounces, and measuring 18½ inches. Not more than twenty minutes elapsed from the time the patient was seized in the kitchen till all was over, including the stitching up of the abdominal wound and the removal of the mother's body. The child not being premature was easily reared, and grew up to manhood. A very interesting case of successful post-mortem Cæsarean section has recently been reported by Sandberg, of Christiania. He operated under very unfavorable conditions, as the mother had died of eclampsia, an affection very perilous to the fetus. The patient was a primipara aged thirty-six, and expected her confinement on September 20, 1895. In July of the same year anasarca set in. On August 18 she died comatose, after numerous attacks of eclampsia. Four minutes after the heart sounds had ceased, Cæsarean section was performed. The uterus was opened after the escape of much ascitic fluid. The child was born asphyxiated, but breathed well a quarter of an hour after delivery. It was under four pounds in weight, and not sixteen inches long. Placed

in an improvised couveuse, it was fed with a mixture of one part milk, three parts water, and four per cent. sugar of milk. The infant was successfully reared, and was living in October, 1896, when the report was published. This remarkable case of the delivery and rearing of a truly posthumous child is a triumph for the couveuse as well as for the well-timed operation for which Dr. Sandberg deserves credit. We have already noted its ethical bearing, an interesting question for medical jurisprudence. As Spiegelberg has pointed out, Roman law directed that before the corpse of a pregnant woman was buried Cæsarean section should be performed. By Prussian law, the performance of Cæsarean section on a woman who has died during pregnancy is left to the judgment of the medical attendant in the particular case. Löwenhardt and others advocate the operation when the mother is in *articulo mortis*, but though this doctrine is based on a high principle, it is contrary to higher sentiments, and does not find favor either with the profession or the public.—*British Medical Journal*, Nov. 28, 1896.

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### *THE CONTRAINDICATIONS TO THE USE OF THE SALICYLATES IN ACUTE ARTICULAR RHEUMATISM.*

CHASSEVANT contributes a paper with this title to *La Semaine Médicale*, No. 54, 1896. He points out that according to Jaccoud the salicylate of sodium is contraindicated in those cases of acute articular rheumatism in which there is a predominance of visceral complications. Under these circumstances Jaccoud prescribes tartar emetic in large doses, and if necessary adds opium to the dose in order that the patient may withstand it, thereby checking the diarrhea and tendency to vomiting. The result of the use of this remedy is usually a fall in the fever, the quieting of the nervousness, and never when it has been instituted has Jaccoud met with pericarditis or cerebral accidents of a serious character.

Chassevant asserts that a number of other physicians sustain this clinician in his assertion that the visceral phenomena are benefited. He quotes Donald Hood's paper, published in 1881, in which 350 cases of acute articular rheumatism were treated by the salicylate of sodium. Out of these 350 cases, 241, a proportion of 80, suffered from cardiac complications.

Smith in 1882 published the statistics of 1724 patients suffering from polyarticular rheumatic fever treated in various ways. Of this number five per cent. had cardiac complications.

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### *THE USE OF ENTEROCLYSIS IN THE GASTRO-INTESTINAL AFFECTIONS OF NURSLINGS.*

An interesting article upon this topic is contributed by THIERCELIN to the *Revue de Thérapeutique Médico-Chirurgicale* of December 1, 1896. After a historical review of those who were the first to employ this method he passes on to a consideration of its therapeutic effects, its indications and its contraindications. He believes that it is indicated in cases of obstruction of the bowels and in cases in which fermenting materials have been retained in the intestine, whether this condition be acute or chronic, although he believes that it is particularly useful in the chronic cases. By the use of enteroclysis under these circumstances the fermenting material is removed and the poison which is formed thereby is washed out of the bowel. Should fever accompany the infectious process cold water may be employed for the injections, using as large a quantity as one or two quarts. These copious irrigations of the bowel are one of our best aids for the relief of the hyperpyrexia which seems to menace the child, and speedily cause a fall of temperature amounting to 2° to 3°. On the contrary, should the affection be accompanied by collapse and a fall of temperature, the employment of water at a temperature of 100° to 102° or 102.5° is generally useful in raising the temperature of the patient to the normal. When fever is present the injection improves the condition of the pulse and the action of the heart, and it is probable that a sufficient quantity of the liquid is absorbed to increase the function of the kidneys and liver, thereby producing a true lavage of the entire system. The liquid which is employed in different morbid states consists of water which has been carefully sterilized by boiling and to which common salt has been added in the proportion of 100 grains to the quart of water. Should there be present a follicular enteritis it is well to use a decoction of marshmallow root. Other authors recommend in cases of acute infection of the bowel in nurslings the employment of a solution of boracic acid; and still others, notably Doriac, a solution of lactic acid. It is also to be remembered that alkaline injections of large quantities of water are of value in the treatment of catarrhal

jaundice. The total quantity of the injection varies with the age of the patient. Rarely in nurslings do we exceed the employment of two quarts, but in adults as much as five quarts of liquid may be used once or twice a day. Contraindications to the employment of enteroclysis are cardiac affections and ulceration of the bowel to such an extent that there is danger of perforation, although it has been claimed by some physicians that they have gotten good results from the employment of enteroclysis in the treatment of typhoid fever. Thus Doriac has obtained a rapidly beneficial influence by the use of large injections of a hot solution of creolin.

In cases of intestinal obstruction, enteroclysis is useful but must be employed with caution. The apparatus which is necessary for this treatment is a reservoir capable of containing two quarts of liquid, to which is attached a long rubber tube, at the extreme end of which is placed a gutta-percha nozzle about one foot in length, the diameter of which varies with the age of the patient. This nozzle or catheter is gently introduced into the bowel for a considerable distance and then the solution is allowed to flow very slowly through it into the bowel, the patient lying in the horizontal position, preferably upon the right side. The anal opening should be closed around the catheter by digital compression, and it is not to be forgotten that the greatest care must be exercised to see that the water flows slowly. Should straining come on the flow must be stopped until the spasm of the bowel ceases, when it may be resumed.

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### *TAPPING THE PERICARDIUM.*

Mr. AUSTIN MELDON read a paper on this subject before the Section of Surgery of the Royal Academy of Medicine in Ireland, which is reported in the *British Medical Journal* of December 12, 1896. In 1663 Riolanus first proposed paracentesis pericardii. One hundred years later Senac stated that the operation was possible, and still later Van Swieten suggested a method of performing it. In 1819 Romero, of Barcelona, operated with perfect success. Jowett, of Nottingham, operated in 1827, and Schuh in 1839. At present just 100 cases had been recorded, and he believed that many more had occurred which had never been published. Out of all these cases, only once had the operation proved fatal. In this unsuccessful case the right ventricle was lacerated by the trocar. Some others had died soon after the operation, but these were cases that were moribund at the time it was undertaken. The remainder, without exception, were relieved, and many of them cured. Under these circumstances it was clearly the duty of the surgeon, whenever death was imminent from cardiac pressure, to resort to tapping. Experience, too, had shown that the operation is not attended with great danger, and certainly in cases of effusion from rheumatic pericarditis there was every prospect of recovery. He had seen several cases within the last thirty years in which he was convinced that the fatal termination was due to pressure of fluid in the pericardium, and might have been averted by drawing off the fluid. On one occasion he was able to verify this opinion by a post-mortem examination. He then gave details of two successful cases of tapping the pericardium. The first case occurred some years ago. The patient was a woman, aged fifty-eight, and seemed to be dying from increasing hydrops pericardii. The instrument he selected in this preantiseptic period was a long hydrocele trocar, which was washed well in very hot water. An incision was made into the skin two inches from the sternum in the fifth intercostal space, and in order to make it valve-like, the skin was drawn up to the full extent possible before making it. A trocar was with some difficulty inserted, and on withdrawing it fluid of a dark color followed. When eight ounces had been withdrawn the fluid flowed very slowly; the instrument was therefore taken out, and the wound covered with flexible collodion. As the patient appeared faint, a little brandy and ammonia was administered. An hour later all difficulty of breathing had disappeared, but although the patient expressed herself completely relieved, a very slight cyanotic condition remained. On the following morning this was gone, and her pulse was strong and regular. She left the hospital five weeks later in perfect health. The second case was that of a man aged twenty-six, to whose bedside Mr. Meldon was summoned on March 5, 1894. He was suffering from rheumatic pericarditis, with great difficulty of breathing, precordial dulness was greatly increased, and cyanosis and epigastric distress to a considerable amount were also present. The pericardium was tapped, and almost immediately the patient's breathing improved to such an extent that when 5½ ounces had been removed the needle was withdrawn. Cyanosis, dyspnea, and epigastric distress completely

disappeared in a few hours. The fluid, unlike that in his previous case, was a healthy serum. On August 31, 1894, a case occurred in the practice of Dr. Joseph Redmond in which 22½ ounces of dark-colored fluid were removed, and seven days later 27½ ounces were also taken out. In this case, which recovered perfectly, a drainage tube was subsequently inserted. Dr. Patrick Hayes was the surgeon who operated. The statistics of paracentesis pericardii showed that the fifth left intercostal space, at a point one inch to the left of the sternum, was the most suitable place for puncture. The selection of the instrument would likewise seem of some importance. If too small a cannula were used it was apt to become plugged with flakes of lymph. Mr. Meldon showed two instruments which had been made for him by Messrs. Smith & Sheppard. One was to be used with and the other without an aspirator. Both became arrested when two inches of the instrument had passed into tissues, and then any further depth was obtained by a screw motion. This latter is the suggestion of Dr. Woods. The author believed that when there was any fluid in the pericardium it was quite safe to plunge the trocar in fully two inches. He concluded by quoting Dr. Samuel West's conclusions to his able article in the *Medico-Chirurgical Transactions*, and which he believed should be adopted by the profession.

In the discussion which followed the PRESIDENT said the principal questions for consideration were as to the place where the puncture should be made, and as to the best way of dealing with the conditions that occurred when the disease became purulent.

Mr. LENTAIGNE said the operation was comparatively easy, and the results were likely to be satisfactory. In two cases which came under his notice not long ago the operation, which would very probably have given relief, was not permitted. Both patients were consequently allowed to die from what he might call simple heart suffocation, resulting from extreme distention of the pericardium.

Dr. FRASER recalled a case of pericardial effusion in which after death a measured gallon of fluid was drawn off. That case might have been beneficially treated by operation. He had, however, had fair success in treating pericardial effusion in rheumatic cases medically. He did not know what would be the use of tapping in the case of a "pineapple" heart surrounded with three inches of lymph. Again, there was a class of cases of rheumatic fever in which pericarditis occurred, followed by delirium, and in which the effusion was not at all in proportion to the severity of the cardiac symptoms.

Sir THORNLEY STOKER said the great crux was how the case was to be dealt with when there was pus in the sac. When there was only serum, after it had been removed a reactionary condition was set up, and no further accumulation of serum occurred. But where there was pus, although the heart was relieved by the removal of it, a secretion of pus would continue where there were ulcerated or diseased surfaces; and the removal of it in the first instance was almost useless, unless means for subsequent drainage were provided. He thought the introduction of a trocar and cannula to such a depth as two inches unnecessary, except in the case of a patient of exceptional obesity.

Professor BENNETT gave particulars of a case in which, very early in his experience as a hospital surgeon, he was asked to tap the pericardium of a patient. He was unable to satisfy himself that there was fluid in the pericardium. As the man was in great distress he opened first the basilic vein on one side, and then that on the other. After there had been a full flow of blood from the second opening the symptoms were relieved. The man fell asleep, and the cyanosis entirely disappeared. After three or four days the man had a second attack of the same kind. He was not in attendance at the time, and in two or three hours the man died. He made a post-mortem examination, which disclosed an adherent pericardium and huge heart; and there was no doubt that if he had tapped him with a trocar and cannula he would have killed him on the spot.

Mr. WHEELER said he had had experience in two cases. In one three separate tapping operations were performed, fluid coming each time, and on the third tapping there was pus. The form of operation adopted was to dilate an opening with a forceps, pass in a cannula, and pass through it a very fine probe. The patient made a rapid recovery, was well in three months, and was perhaps alive now. In the other case tapping was performed once with an aspirator. The patient got quite well.

Mr. TOBIN said the difficulty as to depth might be met by using an aspirator and needle; and as soon as the needle was inside the skin the aspirator should be turned on. The moment the needle entered the pericardium the flow of fluid would show that it need be pressed no further.

Sir WILLIAM STOKES said it had never fallen to his lot to perform this operation, but it struck him as somewhat remarkable that in the cases mentioned by Mr. Meldon a single tapping should have been sufficient. In many cases it was sufficient; but they knew that cases of serous effusion occurred in which frequent tapping was necessary.

Mr. HEUSTON said when they were sure that there was only serous effusion they would be justified in using the trocar or aspirator in such a way as Mr. Meldon had adopted with such excellent results. But there were other cases in which the only proper thing for the operator to do was to make a free opening down to the pericardium, so as to be able to see what he was doing. In suppurative pericarditis it was absolutely necessary to make an incision at an early stage.

Mr. MELDON, in reply, said the position of the patient was of great importance in determining the depth to which the instrument should be inserted. In doubtful cases he would follow Mr. Tobin's suggestion. Selecting a No. 1 needle, and having created a vacuum in the aspirator, the instrument should be pushed in until the eye is covered, and the stop-cock then turned on. The needle might now be pushed in to a reasonable distance in search of fluid. Even should the heart be touched by such a small instrument, it would not be so very serious as has been stated, especially as the left ventricle has been designedly punctured, and the patient relieved by the operation. He was not aware of any case of rheumatic pericarditis in which a second tapping was required. The patient in the second case was kept in hospital for five weeks after the operation, because it was thought that all the fluid had not been drained off, but it never collected afterwards. As to a second tapping being more dangerous than the first, he had never tapped a second time, so that he could not say whether it was or not. Statistics did not show it to be so. There were two special points in reference to the signs of pericardial effusion to which he would draw attention. The first manifestation was increased broadening of the cardiac dulness at the lower portion, first to the left and then to the right, until there was absolute dulness in the fifth intercostal space in the region named by Ebstein—the cardiac hepatic angle. The second symptom was the occurrence of intermission of the pulse during inspiration at a time when the heart is beating without such intermission. Most of the other observations had reference to purulent pericarditis, which was not treated of in this paper, but he quite agreed with the opinions expressed that this condition was best treated by incision and drainage.

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### *TREATMENT OF EPITHELIOMA OF THE FACE BY THE APPLICATION OF METHYLENE BLUE AND CHROMIC ACID.*

According to the *Revue de Thérapeutique Médico-Chirurgical* of December 1, 1896, DU CASTEL has reported very good results from the employment of these drugs for this condition, when extirpation of the part which is affected is impossible. The ulceration is first softened by means of the application of a poultice of potato containing corrosive sublimate in the proportion of 1:100. Loose, easily disconnected tissues are to be removed with the galvano-cautery, and after this has been done and the part has been thoroughly cocainized the following solution is employed by means of a wad of cotton and forceps:

℞ Methylene blue, 15 grains;
Alcohol and glycerin, 75 minims.

The parts which are stained by the methylene blue are then touched with chromic acid solution and immediately afterwards the application of blue is repeated. Finally the part is dressed with compresses wet with sublimate. The applications are repeated at intervals of two or three days, and usually in a month cure, or at least much benefit, will be manifested.

Du Castel believes that the application of methylene blue constitutes an excellent method of treatment, and that it exercises an incontestably advantageous influence over superficial epitheliomas; in addition it is entirely inoffensive and harmless. Of course it does not compare in usefulness with operative procedures where they can be undertaken.

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### *THE TREATMENT OF SYPHILIS BY INTRAVENOUS INJECTIONS OF MERCURY.*

In the *British Medical Journal* of December 12, 1896, ERNEST LANE writes interestingly of the plan of treating syphilis by intravenous injections of mercurial solutions and tells us that it was originally suggested by Baccelli in 1893, and has since been carried on by many Continental surgeons: in Italy by Jemma, Colombini, Nieddu, Cam-

pana, and Bruni; in Germany by Görl, Neumann, and Lewin; in France by Abadie; and in Russia by Stoukovenkoff and Kusel.

Having charge of all the male wards at the only hospital in London devoted to the treatment of venereal diseases, the writer has had unusual opportunities of giving a fair and impartial trial to any novel method of treatment; and, with a view of estimating the value of this plan, he has systematically adopted it in every case of syphilis which has come under his care in the London Lock Hospital during the last nine months, and he states with conviction that he has formed a very favorable opinion as to its merits, and believes that, with certain reservations, it compares favorably with other methods of treatment, whether it be by inunction, by intramuscular injection, or by internal medication, its special feature being the rapidity with which patients can be brought under the influence of mercury.

The preparation he has utilized throughout has been cyanide of mercury in one-per-cent. solution, and the amount used at each injection was usually 20 minims, or about 1¼ grammes, though in some of the more severe cases he commenced with double this dose for the first one or two injections. At first the injections were employed every other day, but after a short time he decided to introduce them daily. A loop of bandage is first tightly applied round the upper arm, and selection is made of the most prominent vein in the neighborhood of the elbow-joint; the skin in that region is rendered aseptic in the customary manner, and the needle is thrust into the vein, the syringe filled with the solution being attached to it; the bandage is then removed, and the syringe is emptied into the vein and then rapidly withdrawn; the finger is placed on the puncture for a few seconds, and the operation is complete.

As will be pointed out later, when dealing with the advantages of this system, it is absolutely painless, and with ordinary precautions perfectly devoid of danger.

The number of cases treated amounted to seventy-six, and the number of injections made was upwards of one thousand. These injections were carried out by the writer's house surgeons (Dr. Byles and Mr. Choppings). The cases treated covered a very wide field, and embraced nearly all the possible manifestations of the disease, from the simple and uncomplicated case to severe tertiary ulcerative lesions of skin and mucous membranes, malignant syphilis, condylomata, iritis, and chronic and relapsing syphilides. The number of injections necessary varied from forty-six to four.

As a result of the treatment fifty patients were relieved, and by relieved is meant that they left the hospital absolutely free from syphilitic manifestations; sixteen improved under treatment, but still presented some traces of disease on their departure; four either refused to undergo the treatment, or had to be discharged from the hospital for misconduct; and in six instances the treatment had to be suspended owing to the impossibility of bringing the veins into sufficient prominence to allow of the injections entering them with any certainty, but in several of these cases great improvement was noted before the treatment was discontinued. It is a perfectly easy matter to determine if the injection has missed the vein by the pain, swelling, and bruising which shortly supervene, whereas the injections if properly effected are followed by no discomfort of any kind; moreover, the sensation produced by the needle moving freely within the lumen of the vein differs widely from that which is imparted should it only have entered the cellular tissue. As a rule very little inconvenience was experienced by these patients in whom the injections missed the vein, but in a case in which the injections were made into the dorsal veins of the foot, which were somewhat varicose, a skin slough shortly supervened, leaving an ulcer which resisted treatment for some time. The vein usually selected was the median basilic, and no appreciable change could be detected in its walls, though in one case as many as twenty-three injections were introduced into each arm. As previously stated, the patients submitted to this treatment were all males, and it is hardly necessary to point out that, in dealing with women, greater difficulties would be encountered owing to the smaller size of their veins.

All the patients under the writer's treatment were admitted into the wards of the hospital; still he sees no objection to the treatment being carried out in the out-patient departments. There was no selection of suitable cases, but every syphilitic patient who presented himself was submitted to the intravenous injections, whatever his bodily state, and a considerable proportion had resisted previous treatment in the out-patient department, and were transferred to the wards of the hospital in consequence; many of them were in a most unfavorable condition, being

broken down by exposure, intemperance, and privations; nor were the patients very amenable to hospital discipline, and several of them left while still manifesting active signs of disease, whilst others had to be dismissed owing to breaches of regulations. In every case the diagnosis was made absolutely certain by the appearance of some secondary manifestation, and the treatment was never commenced until the nature of the case was satisfactorily proved. In a few cases diarrhea supervened during the treatment, but these attacks were transitory, and were possibly due to other causes; in some instances gingivitis occurred, but it was not so marked as after other methods of mercurial administration, and in no case was salivation noticed; the hygiene of the mouth was carefully attended to, and alum gargles were employed two or three times a day. In a few instances polyuria and very slight albuminuria were observed after the first or second injections, but these soon disappeared and did not necessitate any modification in the treatment. The only other remarkable feature to be recorded is that many of the patients experienced a metallic taste in the mouth immediately after receiving the first few injections.

The advantages of intravenous injections may be summarized as follows: They are absolutely painless, in which respect they are in direct contrast with intramuscular injections; the functions of the digestive tract are not interfered with; the doses of the mercurial salt are small, are certain of absorption, and can be easily regulated to the varying susceptibilities of different individuals; with ordinary precautions the treatment is perfectly safe, and even if the vein is missed little or no inconvenience is caused thereby; the resulting improvement is certain and rapid, and consequently it would seem to be indicated in cases of cerebral syphilis. His experience does not warrant him, he states, in offering an opinion as to whether this treatment is followed by relapses, but so far he has not met with any. The only real objection is the difficulty experienced in some instances of bringing the veins into sufficient prominence, and in a certain proportion of cases, especially among women, this is an insuperable obstacle. In conclusion, he is of opinion that in intravenous injections we have a valuable addition to our antisyphilitic therapeutic agents, though the plan is one which obviously cannot be recommended as a routine in practice.

### *OPERATION AND CURE OF A CASE OF ADDISON'S DISEASE.*

A malignant retro-peritoneal tumor was diagnosed in the case of a woman presenting all the symptoms of Addison's disease. When removed it was found to be a suprarenal capsule in a state of tuberculous degeneration. All the various symptoms disappeared completely after the operation, and the patient has enjoyed good health ever since. There were no organic lesions except this tumor and an old tuberculous focus in the lung. It must be evident, therefore, that the condition of the capsule was responsible for the development of the disease; hence the removal of one or both capsules in Addison's disease seems to be indicated. The operation is not difficult, as a tubercular capsule is more easily separated from neighboring organs than a sound one.—*Zeitschrift für Klinische Medizin*, No. 2; *Journal of American Medical Association*, Dec. 26, 1896.

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### *CAUSE AND PREVENTION OF SUPPURATION OF STITCHES.*

Some recent writers attribute the occasional suppuration of the stitches in carefully performed operations to the presence normally of certain pathogenic micro-organisms in the underlying layers of the derma, which cause suppuration when exposed to the air by the wound. REMLINGER even asserts that most of the micro-organisms found in the blood drawn from the finger are derived from the lower layers of the skin. His statements are revolutionary in regard to the conclusions we have been drawing from inspection of a single drop of blood in infective disease. We know that the flora of the superficial layers is extensive, but he announces that he found the staphylococcus *albus* (twenty-three times), *aureus* (eleven times), and *citreus* (fourteen times), the streptococcus *pyogenes* (eight times), and the *coli bacillus* (five times), in his experiments on fifty perfectly healthy men, taken with a sterilized needle from the deeper layers of the derma. The only means to avoid error in examining the blood is to draw it from the deeper tissues with a needle not only sterilized but inserted while still red-hot. The logical inference is that surgeons should make their incisions with the thermocautery in order to destroy these intracutaneous germs, but the same effect is secured by a much simpler method, the disinfection of each stitch with alcohol, as E. Blondel announces in the *Journal de Médecine de Paris*

in an able review of the subject and the latest theories. He has revived the Hippocratic practice of bathing wounds with wine, as taught by Theodoric and Mondeville, and applies it with invariable success. Especially in total perineorrhaphy, which is so difficult to perform with perfect antisepsis, he has secured results far surpassing any previous achievements. He makes as few stitches as possible in the lower layers, and before drawing them tight he wets them and the edges of the wound with ninety-per-cent. alcohol, and sponges the tissues with a cotton pad dipped in it. Each suture is treated in the same way, and the final suture is sponged with strong alcohol and then dusted with iodoform or equal parts of dermatol and aristol, repeated every second day afterward. Alcohol dries the surfaces better than any other substance; its effect on grease is also a factor in the result, and it has a coagulating effect on the serum and thus favors cicatrization.—*Journal of the American Medical Association*, Jan. 30, 1897.

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### *INDICATION FOR THE USE OF THYROID EXTRACT IN GYNECOLOGY AND OBSTETRICS.*

CHERON (*Revue Médico-Chirurgicale des Maladies des Femmes*, November 25 and December 25, 1896) holds that thyroid extract is an excellent remedy in threatened abortion with hemorrhage, and is valuable in preventing the arrest of uterine involution after childbirth, and that it is potent against the premature return of the monthly periods. Moreover, it is a valuable galactagogue.

Thyroid extract in other words stimulates the mammary secretion, whilst it lessens functional activity of the uterus. In gynecology it has proven valuable in the control of all forms of uterine hemorrhage, whether this be due to endometritis, tumor, or lesions of the adnexa.

The contraindications to the employment of the drug are: tuberculosis, since this seems to be stimulated rather than arrested. In heart disease, even though thyroidin is strongly indicated, it should be administered with the utmost care and should be stopped at once upon the first suggestion of tachycardia. Symptoms of thyroid intoxication are tachycardia, oppression, exophthalmos, and irritability. In certain cases the drug produces rapid emaciation. Sometimes gastric vertigo has been observed. Because of the difficulty experienced in procuring the fresh gland and the repugnance which patients exhibit in consuming it, it is well to administer it in the dry form prepared by druggists—this may be obtained in tablets, pastilles or capsules—in doses of 1½ grains twice daily before meals. After a month there should be an interval of eight days during which the drug is discontinued, followed by a three weeks' course of the medicine. If indications still exist for its employment a rest of two weeks is given, followed by two weeks of the drug.

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### *ALEXANDROFF'S SIGN FOR EARLY DIAGNOSIS OF COXALGIA.*

Beside the usual symptoms of incipient coxalgia, ALEXANDROFF (*Presse Médicale*, Dec. 9, 1896) insists on the importance of two additional signs, the atrophy and fatty degeneration of the muscles and bones, and especially the hypertrophy of the subcutaneous cellulo-adipose layer, which exists in every stage of the disease from the first and increases with the gravity of the case. In advanced stages the hypertrophy extends throughout the whole member. This is the cause of the effacement of the fold between the thigh and buttocks (*pli fessier*), and the difference in this respect between the sound and the affected thigh is very evident—as much as one and a half to four millimeters in some cases. Alexandroff has invented a special instrument, the adipometer, resembling Weber's compass, to measure the thickness of this subcutaneous layer. The movable portion of the apparatus slides on a graduated plate and a spring near the handle allows a pressure of five to ten grammes. He has been using it for six years and states that atrophy of the member coinciding with hypertrophy of the fold is one of the most important signs by which to recognize tuberculous osteoarthritis before any other symptoms have appeared, while the absence of these trophic troubles is conclusive evidence of the non-existence of a tuberculous lesion of the coxo-femoral articulation, even when it is indicated by other symptoms.—*Journal of the American Medical Association*, Jan. 30, 1897.

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### *ABSCESS OF THE LUNG.*

W. P. NORTHRUP (*New York Medical Journal*, Jan. 16, 1897) reports a case of abscess of the lung in which operation was attended by prompt recovery. The patient was an English woman, aged twenty-three, waitress.

On admission to the surgical division on September 26, 1895, her temperature was 104°, pulse 125, respiration 32; there was extreme dyspnea, and the heart's action was very feeble. Physical examination of the left lung was negative. Of the right: behind, râles over two-thirds, indifferent in quality, occasional; slight dulness over lower two-thirds, vesicular breathing heard close under the ear, no bronchial element to voice or breathing. Nothing heard over the posterior or post-lateral aspects to give any clue to the diagnosis; certainly could not suggest a source from which such a quantity of expectoration could come as the patient brought up. Anteriorly at apex there were exaggerated pulmonary resonance and respiratory sounds. All positive physical signs were from the third space downward; over this there was flatness, continuous with the liver to the free border of the ribs. The level of flatness gave the impression of a liver crowded up to the third space. The line of flatness was straight and sharp from the sternum to the anterior axillary line; here it became indistinct, apparently dipping deeply inward and turning downward to the liver flatness. It was as though a quart water-bag had been shoved in from under the sternum, crowding the lung upward, backward, and toward the axillary line. Over this area there was flatness continuous, absence of all respiratory sounds, no bronchial voice, and there were no râles or friction sounds; it suggested the signs one gets where sarcoma has produced a solid tumor in the mediastinum or root of the lungs. The heart was not crowded from its normal position, nor was the liver displaced downward.

The question which first presented was whether this was encapsulated empyema emptying itself through the bronchial ways, or abscess in the lung. It was at first thought to be probably the former, but when it came to exploratory puncture the opinions had rather turned to the second. Incidentally the site and manner of puncture indicated the diagnosis entertained.

The patient was assisted to sit up in bed, the right forearm bent over the top of the head. A long, large-calibre exploring needle on a piston syringe was used. The needle entered at a point just posterior to the breast, about the anterior axillary line, on a level with the third space (at sternum). It was then directed, not toward the superficial flat area, but deep, and as near as possible toward the root of the lung, and thrust in up to its limit before drawing the piston. When the air was exhausted the barrel promptly filled with thick, stinking pus.

This did not of course distinguish between an encapsulated empyema lying in the position of the water-bag — that is, touching the chest-wall in front and extending deep along the mediastinum and in the direction of the root. The sputum was examined repeatedly for tubercle bacilli and actinomycosis rays without success. The nature of the process was never determined by exact test.

The diagnosis was deep-seated pus in the right lung, either encapsulated interlobar empyema or pulmonary abscess near the root.

Operation was performed under ether anesthesia. Several exploratory punctures were made with a large needle below and to the outer side of the right breast, but no pus was found. An incision two inches long was then made over the sixth rib, below and just external to the right breast in the anterior axillary line. A portion of the rib an inch and a half in length was excised and an entrance thus gained into the pleural cavity, which was found free from fluid of any kind. This exposed the vault of the diaphragm, and superior to this, but not in contact with it, was felt the lung, consolidated, contracted, and occupying the upper and inner half of the right thoracic cavity. The incision was carried upward and backward along the rib into the axilla and an additional two inches of rib excised. The finger was then swept around the lung, which was seen and felt to be firmly adherent to the superior internal and anterior wall of the right chest. Except at the apex, however, there were no adhesions toward the external wall, and the contracted lung was at least two inches distant from that part of the chest-wall where the incision had been made. A large exploring needle was plunged directly into the centre of the lung, and at the depth of two inches pus appeared in the syringe. The needle was left *in situ*, and along it an incision was made by scissors through the consolidated lung tissue until the abscess cavity was reached, when about three ounces of thick and very fetid pus escaped. The cavity was freely opened, and the finger passing into it broke up a number of trabeculæ and pulled out a long strip of sloughing tissue with a very foul odor. A soft spot being felt in the internal wall of the abscess, the scissors, guided by the finger, was plunged into this and entered another cavity from which there

was an escape of an ounce of pus of a similar character. This cavity was also freely opened, and all bands of tissue broken up by the finger. The hemorrhage from the incisions in the lung was insignificant and needed no mechanical procedures for its arrest. The cavities were rubbed, and all loose and broken-down tissue was swabbed away with gauze sponges No irrigation was employed; strips of iodoform gauze were packed into the cavities alongside of two soft-rubber drainage tubes. The ends of the strips and tubes were brought out through the opening in the chest-wall and a copious sterile dressing applied. Severe shock followed, and for several weeks the patient remained in a very critical condition.

During December the gain was very rapid; by the 20th the cough had almost disappeared, as had the expectoration. The lung was slowly expanding. The opening into the chest was completely closed. The patient's general condition was so good that she was allowed to return to her home, where she has continued to gain flesh and strength.

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*TECHNIQUE OF CÆSAREAN SECTION.*

B. C. HIRST (*American Journal of Obstetrics*, January, 1897) calls attention to the fact that operations of tracheotomy and herniotomy may be forced on the general practitioner in an emergency at any moment. But the exigency requiring a Cæsarean section will be rare, occurring only once perhaps in the course of a general practitioner's career. From a personal experience, unusually large in America, of fourteen Cæsarean sections, in which he has tested every method proposed by modern operators, he has settled down in the past three years to a technique which has proved so satisfactory in the operation itself and in its results that the writer intends clinging to it indefinitely.

If there is time to make the best arrangements the Cæsarean section should be performed at a convenient hour of an appointed day, like any other abdominal section. A period about two weeks or ten days before term should be selected. It is unnecessary to excite labor pains beforehand or to secure any degree of dilatation of the os. The preparation of the patient herself is like that for any abdominal section.

The patient on admission is given a full hot bath. Have her kept in bed from the time she enters the hospital until the operation is performed. Administer pill: strychnine $\frac{1}{30}$ grain, digitalis ½ grain, quinine 2 grains; three times daily before operation. Secure movements of bowels by two drachms Rochelle salts every evening. Have the heart and lungs examined, and also the urine.

The diet before operation consists of gruel for breakfast, soup for dinner, milk-toast for supper, one glass of milk at 10 A.M., 4 P.M., 9 P.M.

As to medicine, at 5 P.M. the day before operation, ten grains sulphonal in half a glass of boiling water, cooled down to temperature that permits patient to drink it, if patient is nervous and has been sleepless; 9 P.M., half-ounce of Epsom salt in a tumblerful of water.

Evening before operation, first cleansing of the abdomen, as follows:

1. Sterilize the following articles for twenty minutes at 240°: soft bristle-brush; absorbent cotton; one-half dozen towels; gauze, unmedicated; binder; long gown.

2. The resident physician, or, under his supervision, the nurse who cleanses the abdomen, must prepare his or her hands and arms as though about to operate, namely: remove rings; scrub with brush, hot water, and tincture of green soap for ten minutes; clean nails with nail-file; scrub hands and arms with benzine and then with alcohol; immerse hands and arms in bichloride solution (1:1000) for two minutes. Then put on the gown.

3. The abdomen, from ensiform to symphysis and from flank to flank, must be thoroughly scrubbed with soft bristle-brush, tincture of green soap, and hot water (for at least ten minutes), paying special attention to navel and to pubic regions. Wipe off the razor with cotton and alcohol; shave pubis, then scrub thoroughly with alcohol. Cover the abdomen with the sterile gauze, and put on the binder.

On the morning of operation give a cup of beef-tea at 7 A.M. The hands of the nurse and doctor should be cleansed as described above; articles resterilized as described above; same cleansing of abdomen repeated as above, but in addition, before alcohol scrubbing, scrub abdomen with benzine; wring out a sterile towel in 1:1000 bichloride solution and cover the abdomen with the towel; put over it a thick layer of sterile cotton; apply binder. Catheterize the woman just before anesthetization with sterile glass catheter in aseptic manner. Give vaginal douche, one quart of 1:4000 solution, followed by a little sterile water. If bowels have not

opened freely give enema—a pint of soapsuds and one drachm of turpentine.

With a large scalpel held firmly in the full hand a free incision is made from two inches above the umbilicus to just above the symphysis. This incision may be carried entirely through the abdominal wall in its upper part—the intestines are out of the way. The abdominal opening is enlarged with scissors downward as low as possible. An assistant makes the wound gape while the operator delivers the womb from the abdominal cavity. The assistant then approximates the edges of the abdominal wound as closely as possible around and above the cervix, at the same time squeezing the latter with his outspread hands. With a few rapid but light strokes of the knife the operator makes an incision an inch in length through the uterine muscle, but not through the membranes, so as not to cut the child. Then with one rapid movement of the left hand and arm the uterine wall is torn down to the internal os, the membranes are ruptured, and the placenta, if in the way, is detached and pushed aside; the child is seized by the most accessible part—shoulder or leg—is delivered, and, with placenta still attached to it, is dropped into a sterile sheet spread out over the outstretched arms of an assistant who stands directly at the operator's left hand, and whose duty it is to revive the child, if asphyxiated, and to tie and cut the cord. Up to this point the operation rarely requires seventy-five seconds. Then follows an easy hysterectomy: ligation of the ovarian arteries and of the arteries of the round ligaments, application of clamps, cutting of the broad ligaments, preparation of peritoneal flaps, amputation of the womb, ligation of the uterine arteries, and oversewing of the stump, which is dropped.

The abdominal wall may be closed by close-set interrupted stitches—the easiest plan for a beginner—or by any other method that a more experienced operator may prefer.

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### *ANTITOXIN, INTUBATION, AND TRACHEOTOMY.*

DOUGLAS in the *Archives of Pediatrics* for February, 1897, reports an interesting case occurring in his practice in which he employed successfully antitoxin, intubation, and tracheotomy.

In young children suffering from diphtheritic laryngitis, with partial stenosis, where the necessity for quick relief demands the prompt use of antitoxin, we are confronted occasionally with a sudden increase of the dyspnea due either to a rapid loosening of the membrane, causing occlusion of the narrow opening in the larynx, or perhaps due to that first change or swelling of the membrane caused by the antitoxin. In these cases the immediate necessity for relief either by intubation or tracheotomy becomes imperative.

In many cases during intubation, or rather the first efforts at inserting a tube in the larynx, we loosen the false membrane and thus cause a partial occlusion, or even a complete closure of the larynx. Where a patient is much enfeebled and has been suffering from dyspnea for many hours with well marked cyanosis, the introduction of a tube may endanger life, through thus suddenly loosening the membrane when he has not sufficient strength to expel it, or where the increased effort necessary to do this is more than the strength of the patient can accomplish. He rapidly becomes more cyanosed, breathes less frequently, and death seems certain within a few minutes. Here the physician dare not again insert a tube, and must resort to tracheotomy.

Such a train of symptoms occurred in a child of six years under the writer's care. It had suffered previously at four and five years of age with bronchopneumonia, the latter attack being in the spring and complicated with whooping-cough. This attack lasted two months, after which she made a good recovery, and at the invasion of diphtheria she was in apparent good health. The membrane covered the tonsils, both nares, the pharynx, and finally developed in the larynx. By this time antitoxin had been obtained and injections commenced. The first dose was given in the evening; dyspnea increased greatly during the night, and in the morning she had great recession in the chest-walls with marked cyanosis. Intubation was performed at once. After inserting the tube dyspnea was much increased, as also the cyanosis. This was ascribed to loosened membrane and obstruction of the tube. The tube was removed in a few minutes, but breathing became slower, reflex irritability ceased, and the patient was being rapidly asphyxiated. So far had the nerve centers become insensible that she lay perfectly quiet, recognizing no one; gasping slowly, and rapidly dying. A rapid tracheotomy was resorted to, when the patient immediately revived, and a good recovery resulted. Four injections of antitoxin were given, amounting in all to 3000 units.

A second case is related, a child of eleven years, suffering from laryngeal dyspnea of diphtheritic origin. Little membrane could be seen, but the distressing dyspnea, cyanosis and recession of the chest-walls demanded instrumental relief. Intubation failed. It is probable some of the membrane was dislodged and the glottis plugged with it, for the child did not breathe again; she became blue at once and after a few struggles lay as dead. Slapping the back and compressing the ribs failed to secure even one inspiration. The heart continued beating feebly. A rapid tracheotomy and artificial respiration were resorted to, the heart ceasing before their completion; the patient after two minutes began again to breathe under these measures and recovered. It was very interesting to note the immediate response of the heart to the first natural inspiration. While artificial respiration secured a rush of air through the tube and a partial filling of the lungs, no appreciable result was shown on the heart, and no pulse appeared till after the first natural inspiration. Antitoxin was used.

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*A NEW SIGN OF FECAL TUMOR.*

GERSUNY (*Wien. Klin. Woch.*, Oct. 1, 1896) describes a sign which, if detected, will often save a patient from needless laparotomy. He is not as yet certain how commonly it is to be met with in cases of fecal impaction. If the tumor be firmly pressed on with the finger the intestinal mucous membrane adheres to the sticky masses of which it is composed; when the pressure is removed the mucous membrane slowly disengages itself, and the sign consists in the recognition of this gradual separation. The only conditions necessary for its production are a certain degree of dryness of the intestinal mucous membrane and a certain impressibility of the fecal mass; the surface of the latter can be softened if necessary by an oil enema. The important factor is undoubtedly the pressure of the intestinal gases. The characteristic sensation can be obtained by pressing the oiled or soaped volar surface of one forefinger into the palm of the other hand and very slowly withdrawing it. Gersuny relates a case of an enormous fecal tumor in a woman of thirty-two; this sign was present, but as he did not at that time recognize its significance he opened the abdomen. He also records two cases occurring in Osler's practice, in which the detection of this sign not only saved the patients from operation, but also indicated the correct line of treatment. All these three cases seem to belong to the same clinical group; the affection began in infancy with irregularity of the bowels and constipation, which remitted for a time under the influence of purgatives and irrigation, only to recur with increased intensity, till at last chronic intestinal obstruction resulted. With this was associated hypertrophy of the large intestine, which became longer, wider, and more thick-walled; the contraction of the walls offered at times an increased obstacle to the passage of feces. Patients suffering from this complex symptom are ill-developed, pale, and thin; purges, irrigation, and massage fail to affect the fecal tumors. The only means of removing these is the combination of oil enemata and massage, which reduce the intestinal contents to a pasty mass, which can then be expressed. The detection of Gersuny's sign, therefore, indicates this treatment.—*British Medical Journal*, Jan. 2, 1897.

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*RESECTION FOR DISEASE OF THE ANTERIOR LOBE OF THE BRAIN.*

DURANTE (*Supplem. al Policlinico*, October 31, 1896) at the recent congress held in Rome reported the case of a man who had suffered for some time from pains in the head, which were at first lessened by antisyphilitic treatment. Later, prominence of the left frontoparietal region, exophthalmos, and amblyopia came on. The man's memory had diminished, and he became melancholy and unsociable; he also had hallucinations. A semicircular osteocutaneous flap was made, and the part trephined. Three hard syphilitic gummata were removed from the frontal lobe. Next day the man's vision returned, and eight days later the intellectual and moral faculties returned to their normal condition. The headache disappeared. Six months later he had an attack of Jacksonian epilepsy, probably due to post-operative meningo-encephalitis.

Another case was that of a woman previously shown at a congress held in Perugia, suffering from loss of memory of words and things, religious perversions, altered moral sense, etc. Upon operating a fibrous adherent body was found and removed. The patient changed as if by magic, and speedily recovered her intellectual and moral faculties, and left the hospital cured. Two months later slight epileptoid attacks occurred, probably due to slow inflammatory processes.

The author dwells on the advantages of an osteocutaneous flap in these cases. Maffucci

mentioned five cases confirming the view that the frontal lobe is the seat of ideation.—*British Medical Journal*, Jan. 2, 1897.

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### *A METHOD OF PREVENTING VAGINAL PROLAPSE FOLLOWING ABDOMINAL HYSTERECTOMY.*

J. M. BALDY presents an interesting paper with the above title in the *American Journal of Obstetrics* for January, 1897. He states that vaginal prolapse following hysterectomy has during the past few years been noted and reported in several instances, and it seems not improbable that such untoward sequences will be more and more frequently noted in the future, as the ultimate results of this operation as performed during the past few years are gradually gleaned. The fact that this complication is beginning to be observed is by no means surprising when the anatomical relations of the pelvis are noted and compared as they exist before and after the operation.

Dr. Baldy states that his procedure is in all essentials an abdominal hysterectomy by amputation at or below the internal os. The points to be observed are: to include both the ovarian arteries and the round ligament in the first ligature on each side of the uterus; to place this ligature as near the pelvic wall as possible, so as to leave but a small amount of broad ligament behind with the stump; to place but one other ligature on each side of the uterus, this ligature to include the uterine artery with as little other tissue as possible, which leaves both broad ligaments open; to amputate the uterus as low on the cervix as possible. The sutures employed are of heavy silk, which in the course of their application include both the ovarian and uterine stumps, deeply placed well back of the ligatures. These points are important, as considerable traction occurs when the sutures are tied, and unless these precautions were taken the suture might tear out or the ligatures on the stumps become displaced. The sutures include the sides of the cervical stump.

The effect of tying these sutures is to lift up the stump of the cervix together with the vagina and to bring it in close approximation with the ovarian stumps, doubling the opened broad ligaments together. Of course the portion of the broad ligament at the point of the ovarian stump will be drawn down somewhat, but the main effect is to lift to a high point the cervical stump and at the same time to drag up the vagina. Adhesions take place throughout the full extent of the doubled broad ligament, and most surprisingly firm support is given from above to the vagina. The peritoneum is drawn together by a continuous catgut suture over that portion of the cervical stump which remains uncovered after the two sutures are tied.

The results accomplished by this operation are: The weight of the heavy uterus is removed; the overstretched vagina is lifted high up and held firmly in place; the supports utilized are the natural supports of the uterus and upper portion of the vagina—the broad ligaments; the cervix remains a pelvic organ; the immediate and remote result as regards fixation of the upper part of the vagina is perfect.

Where there is a cancerous or tubercular uterus to be considered the operation can readily be modified by completely removing the cervix and (after closing the vagina by a continued whipped suture of catgut in the mucous membrane) passing the suture through the vaginal vault instead of through the cervix.

Our aim in placing the sutures should be to open up as little of the broad ligament as possible; to have the vagina as high as possible after the uterus is removed; to place all possible obstacles in the way of vaginal sagging. This can be best accomplished by placing but four ligatures instead of six and making each ligature include as much tissue as is consistent with safety. The first ligature should pass through the broad ligament below the round ligament; it should include both the ovarian artery and the round ligament with its vessels. The ligature about the uterine artery should then include also as much broad-ligament tissue as possible; this can best and most safely be accomplished by tying the artery as it passes up along the side of the cervix, and not in the base of the broad ligament as is usually recommended. If the ligature be so placed there is absolutely no danger whatever of tying the ureter, provided of course there is no anomaly in this organ.

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### *THE TREATMENT OF WOUNDS BY GLUTOL (SCHLEICH).*

THOMALLA (*Therapeutische Monatshefte*, January, 1897) states that for many months he has used formalin-gelatin (glutol) as a surgical dressing applied to neatly apposed incisions which have been kept clean. The results are about the same as those noted

under other dressings—*i.e.*, prompt primary healing. When used as a dressing to ragged and irregular wounds which cannot be neatly apposed, suppuration does not occur. Necrotic fragments quickly separate and cicatrization takes place more rapidly than under other dressings. When wounds are suppurating and are not thoroughly drained the use of glutol is not satisfactory, since a scab quickly forms beneath which pus collects. It is well under such circumstances to remove a part or the whole of the crust and again apply glutol to the wound surfaces. In this way suppuration is quickly limited and the healing is prompt. It is not necessary to remove the entire crust, but only a sufficient portion to allow the free escape of the retained secretion.

Glutol is especially serviceable in the treatment of burns. Originally Thomalla removed the scabs, but as suppuration never took place he allowed them to remain, and has never had infection, excepting in one case, the wound cicatrizing rapidly. This one case was a burn of the foot which was prevented from healing by the rubbing of the shoe. His reason for letting a scab form and remain for several days in the treatment of burns is based on the fact that when suppuration does not take place a breaking up of the glutol and a setting free of the formalin is not required, while the scab acts as an excellent protective to the surface below. Glutol is also advised in all those small wounds which cannot be conveniently bandaged—for instance, such as are inflicted on the fingers and hands of workmen who continue their occupation. Glutol is sprinkled on the wound and over this is painted collodion. On the collodion is sprinkled another layer of glutol, thus forming a water-tight scab. In no instance was there suppuration or growth of proud flesh. The author holds that glutol is the best antiseptic which the surgeon can use in the form of powder, and that it has an extremely wide range of application.

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*NEW DRESSING FOR CIRCUMCISION.*

After the operation clean the penis with some aseptic solution, then paint the penis from the meatus to the root with the following:

℞ Resin, 1 drachm;
Copal varnish, 1 drachm;
Beeswax, 1 ounce;
Tallow, 2 ounces;
Iodoform, 1 drachm.

—*Indian Med.-Chir. Review*, vol. ii, No. 5.

*EXTRA-GENITAL CHANCROID.*

KREFTING (*Norsk Magazin for Laegevidenkaden*, 1896) records seven cases of extragenital chancroid. These cases were due to autoinoculation from a genital ulcer, and were situated over the perineum, the back of the hand, right thumb, right side of the breast, the left middle finger, and the left forearm. Diagnosis was confirmed by microscopic examination. The seventh patient exhibited only a soft chancre on the right index and had no history of venereal ulcer. Diagnosis was confirmed by autoinoculation and finding the microbe.

Fournier states that soft chancre of the head is moderate in extent, superficial, solitary, and quickly heals. Diagnosis can be made only by autoinoculation. The treatment is thus appropriate to genital chancroid. —*Monatshefte für Praktische Dermatologie*, bd. xxiv, No. 1.

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*ROENTGEN RAYS USED FOR DETECTING BULLETS IN THE HEAD.*

SCHIER (*Wien. Med. Presse*, 1896, No. 33) reports the case of a patient who five years ago was shot in the right brow. The symptoms suggested that the ball was lodged in the ethmoid bone. There was complete palsy of the right trigeminus, with the exception of the motor filaments, loss of taste in the anterior two-thirds of the side of the tongue, palsy of the right olfactory nerve and the right optic. It is supposed that besides the direct wound there was a fracture of the base, thus accounting for the palsy. The Roentgen-ray picture, taken from different directions, showed that the bullet was located near the petrous portion of the right temporal bone, near the Gasserian ganglion.

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*THE USE OF AMYLIFORM IN SURGERY.*

CLASSEN (*Therapeutische Monatshefte*, January, 1897) holds that amyliform is a true chemical combination of starch and formaldehyde, proving this on apparently incontrovertible grounds. He claims for this preparation that it is absolutely free from irritating properties, and non-toxic, that it favorably affects the secretion and prevents tissue necrosis, that it does not form a dry crust which retains secretion, and that it will absolutely prevent the foul odor from gangrenous wounds.

Langaard holds that amyliform is greatly to be preferred to this drug.

### *BACTERIAL THERAPY OF MALIGNANT GROWTHS.*

PETERSON (*Therapeutische Monatshefte*, January, 1897), after a review of the literature bearing upon the bacterial therapy of malignant growths, states that cases treated in Czerny's clinic warrant the following conclusions:

The treatment is absolutely worthless as applied to carcinomas.

Very exceptionally sarcomas apparently disappear.

The treatment itself is dangerous.

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### *TREATMENT OF TRAUMATIC TETANUS WITH CHLORAL HYDRATE AND BROMIDE OF POTASSIUM.*

BHICCAJI (*Indian Medico-Chirurgical Review*, vol. ii, No. 5) reports the case of a female Hindoo applying for treatment for the lobule of her left ear, which was torn through. The injury occurred on February 20. On February 24 about midnight the reporter was called to see her at her house, where he found tetanus had appeared. The woman was removed to a hospital and the wound of lobule of ear antiseptically dressed. He prescribed fifteen grains of hydrate of chloral, with equal weight of bromide of potassium, every four hours. On the third day the patient was much better. Treatment was continued for eight days and the patient discharged cured on the fifteenth day.

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### *THE TREATMENT OF COMPOUND FRACTURES OF THE CRANIUM.*

In the *Lehigh Valley Medical Magazine* for December, 1896, appears a valuable *résumé* of the treatment of complicated fractures of the cranium, contributed by W. L. ESTES.

The treatment of severe injuries should be upon the same principles as complicated fractures elsewhere. The cranial cavity is no longer the *noli me tangere* of surgery. With asepsis and thorough drainage, results which formerly were considered quite impossible are now being obtained by every modern surgeon. Unless the surgeon is prepared to do any necessary operation, including cleansing, disinfection, removal of offending pieces of bone, suturing the dura, etc.—after evacuating lacerated and detached cerebral tissue—he should confine himself to attempts to control hemorrhage and prevent further soiling of the wound. When he renders first aid, the wound should never be explored further than to separate the hair, and by means of the hair the lips of the wound, very gently and carefully, in order to discover the extent of the injury. Soiled fingers poked into a cranial wound have many a time signed the death-warrant of the injured person, and the knowledge gained by touch has rarely been of any service in the immediate handling of the case. If there is free hemorrhage it ought to be checked. There are two possible sources of this hemorrhage: the vessels of the scalp and the intra-cranial vessels. Exploration of the wound at this time should be only to find out whether the bleeding is from the scalp or from within the cranium. Usually scalp hemorrhage may be controlled by placing a thin compress under the surface of the wounded scalp and another above the surface, and by a bandage gently squeeze the edges of the scalp between the two. The hands should be carefully washed before doing this manipulation, and only the least possible manipulation be employed—in other words, the condition of the wound should be disturbed as little as possible. The compresses should also be perfectly clean—if practicable, sterile. Unless means be at hand for thoroughly cleansing the wound and its surroundings, it is best not to attempt it at all. If the hemorrhage is from the inside of the cranium, or from the diploe, packing must be used, if the bleeding is at all severe. Pack the crevices between the fragments of the bone with some clean, thin fabric (gauze is best if it can be obtained), and then fill the whole wound tightly with the same material and bandage firmly in place. Then the patient should be transported to a place where he will receive permanent care and attention as soon as possible; and his head should be kept a little elevated during the journey.

These injuries always require an operation. Frequently the operation will be only raising a little depressed bone and suturing the scalp after most careful cleansing; occasionally, however, it will be necessary to remove a quantity of comminuted bone, clear out a quantity of lacerated cerebral tissue, stop profuse hemorrhage, attempt to restore or replace lacerated dura, provide for deep drainage, do some heteroplastic operation to prevent a subsequent hernia of the brain, and transplant the scalp to cover the opening in the bones.

When the surgeon is ready for the permanent dressing and operation, the first act, after getting the patient in a suitable light

upon a proper table, should be to clip with a scissors or hair-clipper the hair about the wound, and then from the wound outwards over the whole scalp, or over so much of the scalp as to insure absolute safety from any infection from the hair. During this clipping the wound should be covered by a piece of sterile gauze. Now the immediate surroundings of the wound for some distance about it should be shaved after careful lathering with green soap. Care should be taken to shave in a direction away from the wound, and while wielding the razor the flaps of the scalp should be steadied by gentle pressure. The patient may now be chloroformed. (He thinks if there is no organic heart lesion chloroform is better than ether in these cases.) Even if he be seemingly unconscious he is apt to have so much reflex left that manipulations will produce struggling. When under the anesthetic, have an assistant carefully douche the wound with a warm, sterile normal salt solution, and thus wash away detritus, clots, hair, and dirt from the wound itself and its immediate surroundings. During this time the operator and his chief assistant should thoroughly scrub and sterilize their hands. The first assistant, after irrigating the wound and surroundings, should place over it sterile gauze and carefully hold it in place while he washes with green soap and water the whole scalp, then use ether and alcohol to remove sebaceous matter, scales, etc., and then a warm five-per-cent. solution of carbolic acid, and lastly the sterile salt solution. Place the head on a firm, sterile, rubber-covered pillow, and now again irrigate the wound carefully with the sterile, warm salt solution. The surgeon may now begin his exploration and operation. The instruments, of course, should have been thoroughly sterilized, and they should be kept in a warm solution of carbonate of sodium during the operation. The author's experience suggests the "bull" that in "trephining" for depressed compound comminuted fractures never use a trephine; the instruments usually necessary are a knife, a pair of blunt-pointed scissors, a chisel, a good, sharp, strong Hopkins rongeur, two or three bone forceps with different curves, an elevatorium, two thumb forceps (one rat-toothed), a half-dozen hemostatic forceps, small and medium sized curved needles and a good needle holder, small and medium silk, silkgut and catgut for sutures and ligatures. The small needles should be previously threaded and ready for instant use.

The operation is begun by incising the scalp over an area sufficient to expose freely the depressed bone, following the line of laceration as far as practicable; rapidly raise and separate the scalp and pericranium from the bones, catch every bleeding vessel in the scalp, turn back the flaps, chisel or gouge the edge of the peripheral fixed bone to get under the edge of the depression with an elevatorium or bone forceps; the depressed bone should be slowly and carefully lifted up. If the fragments have been much soiled, as they frequently are, they should be removed entirely; if not at all soiled the question of their removal will depend upon the condition of the fracture; if very much comminuted and displaced, and the dura and cerebral tissues much damaged, they should as a rule be entirely removed and kept in a warm sterile saline solution with the idea that in certain cases they may possibly be replaced. With the removal of the depressed bone hemorrhage will occur if any principal vessel is involved; this sometimes is a most formidable complication when a sinus is injured or the middle meningeal artery is torn low down. As soon as the bone is out and hemorrhage is free, press into the wound a pledget of sterile gauze and hold it firmly in place for a few seconds, then raise it gradually from one side and carefully watch for the exact spot from which the blood flows, or from which occurs the most profuse flow. If it comes from the dura, a stitch passed by the small curved needle already threaded will probably control it unless the dura be very badly lacerated. The author has had two cases in which the hemorrhage was so exceedingly profuse when the depressed bone was raised that he was obliged to desist, rapidly pack with iodoform gauze, and give up any further operating attempt. One case was an enormous fissure and depressed fracture in which the whole parietal bone was drawn downwards upon the cerebrum and the temporal bone fissured transversely across; the bleeding from the meningeal vessels was so profuse and from so many places that raising the bone would have meant almost immediate death. The bone was left depressed and acted sufficiently, with external plugging and compression, to control the hemorrhage. The cerebrum was so extensively torn that the man died soon after. The other case was quite an extensive compound comminuted fracture, just a little posterior and to the right of the vertex; the depressed part had torn the longitudinal

sinus. The first gentle movement of the depressed fragments was followed by a torrent of blood. He was obliged to drop the fragment back immediately and make pressure; then with a gouge and chisel to cut out some of the peripheral fixed bone; he succeeded in detaching a small fragment of loose bone near the sinus, and by gently insinuating a piece of iodoform gauze in the direction from which the blood seemed to come, he finally stopped the hemorrhage. The next day he was able to raise the depression, but the hemorrhage was again profuse; he controlled it, however, by packing gauze introduced into the rent in the sinus. The man made an uninterrupted recovery notwithstanding the very extensive depression and loss of bone. These cases show that even the most alarming hemorrhage may sometimes be controlled, and packing is the most efficient method of doing this. Such cases as these also show the necessity of having ready means of meeting these emergencies and the futility of attempting these cases by the roadside or when not prepared for them.

The fragments of depressed bone having been removed and the hemorrhage stopped, the next thing is to clean out clots and all detritus. He finds a gentle stream of warm sterile saline solution the best method of doing this, especially when the dura is badly lacerated and there has been an escape of lacerated cerebral matter. Swabbing out a cavity in the brain is a disagreeable and rough method and is apt to increase the injury and so do great harm. After this, if practicable, the dura should be sutured with fine sterile silk. If the dura cannot be brought together, and especially if the cortex has been lacerated, there is great danger of cerebral hernia resulting. In these cases he has replaced the dura with a layer of gold foil, introduced under the edges of the dura on every side and of course large enough to cover the area of bare brain left by the lacerated dura. The dura holds the edge of the foil, then by passing sutures from one edge of the dura across the foil to the other edge and tying them, it is held firmly in place. He lays special stress upon the importance of inserting the foil under the dura mater; if the arachnoid is intact it lies between the dura and arachnoid. Other operators have used the foil between the dura and cranium for the purpose of preventing adhesions to the bone. Experience has shown that in traumatic epilepsies there are nearly always adhesions between the dura and the arachnoid and pia, and that fibrous bands seem attached actually to the cortex itself. The expedient he recommends will obviate these deep adhesions to a great extent, as well as fill in the gap in the dura. When the force applied is very great and over a very circumscribed area—as by a blow from the cork of a horse's shoe, or a bolt on a car striking the cranium—there may be a sort of punched-out wound of all the tissues and a depression deep into the cortex, as he has seen in one case. After all bone, detritus, etc., is removed, there will be a cavity left in the brain, and the cerebral tissue, semi-solid as it is, will continually gravitate into the cavity and thence outwards, in spite of all ordinary efforts to prevent it. He succeeded in controlling this, and had a rapid recovery in the case he mentioned, by making a cup of the gold foil and sinking it into this cavity in the cerebrum, about two centimeters deep; by attaching its rim to the indentations and irregularities of the inner table he anchored it, and then gave it fixity by plugging the cavity of the cup with iodoform gauze. He recommends this in similar cases and says he shall use it whenever he has a chance. The gold foil remained permanently in the cerebrum and caused not the slightest disturbance, and prevented entirely any further escape of cerebral matter. The gauze packing may be removed in three or four days.

Having dealt with the dura and lacerated brain according to the indication, the next point is to assure good drainage. Usually capillary drains of iodoform gauze or thoroughly sterilized catgut will suffice; these, while they act as capillary drains, are best placed at the most dependent part of the wound when the patient shall be in the ordinary recumbent position in bed. Gravity will assist in draining, and sometimes this is necessary in such cases. The next question is, shall the pieces of bone be replaced or not? When the fragments of bone are all badly comminuted, especially when they have been much soiled, and when their replacement may possibly interfere with drainage, do not replace them. Estes' experience is against replacing the fragments at all when they have been entirely separated; they are almost sure to become depressed, no matter how carefully and nicely they be replaced. In one case traumatic epilepsy followed after such replacement, and though it was subsequent to a second severe injury to the head, the symptoms now all point to the firm but

depressed area where the fragments were replaced, and he thinks these are causing the trouble. The man absolutely refuses to have an exploration made. Dr. Beach's and Dr. Weir's recommendation of gold foil under the cranium is better, or some of the many heteroplastic methods—such as plates of celluloid, ivory, or silver fitted into the space left vacant in the cranium—may be used.

The scalp should, as a rule, be nicely apposed and sutured, always leaving a sufficient space for the drains. Sometimes extra drains through the scalp may be used with good effect. Sterile, dry dressings should be applied and held firmly in place by careful bandaging.

The after-treatment of cases of cranial injury, followed by operation, is usually very simple if the operation has been efficient. Cases of depressed fracture or fissures of the vault are frequently accompanied by pressure signs, rather diffuse, but in many cases pointing to injury of the opposite side. In these cases subdural hemorrhage or multiple small hemorrhages, small lacerations, and severe contusion of the cerebrum in the cortex and about the corpus striatum and optic thalamus of the opposite side may be suspected. Trephining over the motor area of this side, incising the dura, and occasionally capillary drainage of the lateral ventricle, may be of service, if the original operation failed to give relief. This secondary opening should be done with a trephine or electric saw and not with a chisel, as jarring of the head should be sedulously avoided. For twenty-four hours after the operation he gives pretty full doses of ergot and the bromides; also full doses of morphine hypodermically if restlessness or sleeplessness should require it. A prime indication is to keep the patient quiet and absolutely free from pain, if possible. He never uses ice-caps or any application of cold to the head after head operations. Gauze drains may be withdrawn as a rule in forty-eight hours; gauze packing for hemorrhage, unless a sinus or one of the larger meningeal arteries has been torn, may be removed at this time also. If one of the larger vessels has been involved, about sixty hours is a safer period for packing to continue. The scalp drainage—that is, the drain through the scalp wound to the dura—if there has been considerable laceration, should be continued for a week. Recumbency, with slight elevation of the head, should continue until all cerebral symptoms are passed. Light nitrogenous diet should be allowed and as much water as the patient will drink. If stimulation is necessary he invariably uses strychnine, and has found that its stimulating action on the spinal cord never does harm if properly watched and the dose graded. Alcohol is contraindicated in his experience. After three days he usually gives bichloride of mercury in full doses, and if the "cerebral irritation" or cerebritis persists, ascending doses of potassium iodide, with some one of the bromides. The strictest asepsis and the best drainage must be maintained throughout.

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### *ON OPERATIVE INTERFERENCE IN TYPHOIDAL PERFORATION.*

ARMSTRONG publishes a valuable contribution on typhoidal perforation in the *British Medical Journal* of December 5, 1896. He calls attention to the fact that symptoms of perforation are generally described as being very distinct and characteristic. These symptoms are sudden, severe abdominal pains associated with collapse; a marked fall in the temperature, often to a point below normal; the pulse becomes rapid and shabby; the abdomen at some part is tender to the touch, and the abdominal muscles tense and rigid, and later distended and tympanitic; the patient is sometimes livid, the face covered with a cold perspiration; the extremities cold.

Too much reliance should not be placed upon the disappearance of liver dulness, although if you are familiar with the area of liver dulness in the patient under observation, the lessening of the dull area in a suspected perforation is certainly a valuable sign. Murchison mentions as other causes of intestinal perforation in typhoid, softened infarctions of the spleen, softened mesenteric glands, and rupture of ovarian abscess.

The symptoms resemble very closely those of acute appendicitis, but in the writer's experience with a number of cases in this hospital, the occurrence of perforation in typhoid is not as a rule announced by such marked and distinctive symptoms as some medical authors describe. The patient complains of pain, but it is not always sufficiently severe to require opium for its relief. There is abdominal tenderness, but it is not as great as in appendicitis, and greater pressure is required to make the patient complain. The temperature is generally lowered two or three degrees, but soon rises again; the face is anxious; and the pulse somewhat

but not markedly accelerated; it is often altered more in quality than in rate. In fact it requires careful and critical observation to determine whether in a given case a perforation has occurred or not. In some cases the symptoms of perforation may be said to be almost entirely absent. This is why house physicians so often overlook its occurrence, and leave it to be discovered by the attending physician at his next visit.

Having recognized a typhoid perforation, how should it be treated? When sure of your diagnosis, give a dose of opium; by so doing you relieve pain and arrest peristalsis, thus favoring the formation of limiting adhesions, and so far as possible preventing the spreading of the escaped matters over the abdominal cavity. Supply artificial heat by means of hot-water bottles and hot flannels, and if there are indications for it, administer a stimulant. Hot fomentations over the abdomen are generally grateful. If the patient's condition permits, ice may be applied over the tender area.

Leyden in 1884 suggested that typhoid perforations should be treated by laparotomy. In the same year Mikulicz reported a successful case of laparotomy with intestinal suture in a patient with ichorous purulent peritonitis, attributed to a perforating typhoid ulcer of the small intestine. The diagnosis of typhoid was not clear; the patient had a small right inguinal hernia. He thought himself well when he jumped out of bed, and was suddenly seized with acute abdominal pain. Laparotomy was performed on the third day for supposed intestinal obstruction. A hole was found in the ileum six millimeters long and four millimeters wide; there were no signs of injury to the bowel, and the mesenteric glands were enlarged. The opening was clean cut, and the edges of the mucous membrane were not everted.

Lücke in 1887 performed the first laparotomy undertaken with the defined object of finding and closing a typhoid perforation. The perforation occurred on the eighteenth day of the fever, and Lücke operated twelve hours later. The patient died.

Since then many operations in different countries have undertaken to close typhoid perforations, but the successes can be counted on the fingers of one hand. The first successful case that the writer finds record of was operated upon by Wagner in 1888. The patient was a woman. The perforation occurred during convalescence. The diagnosis of typhoid perforation was made, the abdomen opened, irrigated, and the wound in the bowel sutured. The patient recovered.

In 1890 Taylor operated, but the operation was performed ten days after the onset of symptoms. There is no proof that the case was typhoid.

In 1891 Van Hook operated upon three cases of typhoid perforation, and one patient, a woman thirty-one years of age, recovered.

In 1894 Netschagan, of St. Petersburg, did a laparotomy for typhoid perforation, and resected a portion of the perforated bowel. The patient recovered.

In 1894 Abbe performed laparotomy on a woman, aged thirty-one, who was convalescing from typhoid. The opening was sutured, the abdomen thoroughly irrigated and tamponaded with iodoform gauze; the abdominal incision was not closed. The patient recovered.

Laparotomy for the treatment of typhoid perforation has been performed six times in the Montreal General Hospital, three times by the writer and three times by his colleagues. So far he has not been able to record a success. The perforation occurred in the patient who is the subject of the author's present paper on the thirteenth day of a more than usually severe form of typhoid fever. The pain and collapse at the time of perforation were not marked; there was some vomiting. He operated eighteen hours after the occurrence of sudden abdominal pain, tenderness, and vomiting. The perforation was readily found, situated about six inches above the ileo-cecal valve; a quantity of fetid brownish fluid, pus, and gas filled the pelvis and lower abdominal zone. The perforated ileum had formed no adhesion to neighboring coils or to the parieties, but the opening was partially closed by a corner of omentum which was attached around the perforation; it separated very easily. Possibly if this man recovers it will be due to the fact of this omental adhesion limiting the escape of bowel contents. Twenty days had elapsed since the operation. The patient's condition was good in every way; he passed formed stools, slept well, and took plenty of nourishment; his abdomen was soft and flaccid, and absolutely free from pain or tenderness; temperature falling, and had a good pulse of 88.

The statistics stand at present—not counting the writer's case, whose recovery is not yet complete, but including doubtful cases—thirty operations and six recoveries; but if only those cases are included in which there

was no doubt as to the diagnosis, counting only early laparotomies, we have twenty-three operations with four recoveries. It is probable that many unsuccessful operations have been performed that have not been reported, but he thinks most of the recoveries have been recorded. Five cases have recovered after incision and evacuation of local collections of pus, and one case after aspiration of a collection of pus and gas in the cecal region.

Now in view of these results, what is our duty when brought to a case of typhoid perforation? The patient is in very poor condition for operation, suffering from the typhoid poison, with very poor reparative and recuperative power. Perforation peritonitis adds more poison. Should we add the traumatism of an operation with a little loss of blood, and anesthesia? Does any other treatment offer as good or better chances? Is there any alternative but to operate, or to hand the patient over to some one familiar with such work? The question must be answered according to the circumstances and condition of each case. If there is a clinical evidence that the perforation is in the colon, or that it is likely to remain localized, then we should wait for abscess formation. If, on the other hand, the clinical signs point to a perforation having occurred into the general peritoneal cavity previous to the formation of living adhesions, it would seem as though laparotomy, closure of the hole, thorough irrigation with normal saline solution at a temperature of 110° F., and very free drainage, offered the only hope of recovery. This should not be undertaken until the condition of collapse has passed off, nor in patients who are evidently moribund.

Perforations occurring during convalescence offer greater prospects of recovery. In this, as in the writer's previous cases, he closed the opening in the bowel by two or three rows of Lembert sutures running in the long axis of the bowel. The opening closes readily. Dr. Johnston kindly tested the closure in the two cases that died—one twelve hours, the other twenty-four hours after operation; in each case neither water nor air could be forced through the sutured part without a good deal of pressure.

The diagnosis in the case reported was confirmed by finding that a drop of the patient's blood gave the characteristic reaction when brought into contact with a pure culture of the typhoid bacillus after a modification of serum diagnosis.

### *WHEN MAY GONORRHEICS MARRY?*

Dr. Lowenhardt (*Journal des Connaissances Médicales*) gives the following rules to be observed by physicians consulted by blenorrhagics to gain medical consent to marry: As the virulence of the urethral discharge depends upon the presence of the gonococcus, the candidate should be subjected to numerous bacteriological examinations, carried out separately on the secretion of the anterior and posterior urethra. A slight secretion is not sufficient, but the urethral mucosa must be irritated in such manner as to place it in analogous conditions to those (excess in Baccho et Venere) which light up an indolent process. This result may be obtained by injecting a few drops of a five-per-cent. solution of silver nitrate into the urethra; if the discharge thus set up contains no gonococci, but is entirely made up of epithelial cells, marriage can be permitted. Another rather popular method of provoking a urethral discharge in order to establish the verity of a cure is to give an injection of 1-to-1000 bichloride solution, and to instruct the patient to drink a quart or more of beer. This would seem to be more heroic than circumstances would warrant. The presence of the numerous pus corpuscles necessitates renewed examinations and energetic treatment of this pseudo-gonorrhea. In spite of failure to find gonococci after repeated examinations, it is better to wait until the discharge has ceased entirely, and to withhold consent to marry until there can be no possibility of contagion. The extreme views of Noeggerath and Tait on the incurability of gonorrhea in the male are too often and too clearly refuted by practical experience to merit serious consideration. Latent gonorrhea, in the etymological restriction of the adjective to "lying hidden," has no existence. If the disease exists, it can always be discovered.—*Medical Record*, Dec. 19, 1896.

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### *AMBULANT TREATMENT OF FRACTURES OF THE LEG.*

Martin (*Philadelphia Polyclinic*, Jan. 2, 1897) presents a communication with the above title. The method of treatment consists in so applying the plaster dressing that a patient, instead of being confined to bed for five or six weeks, can get about and attend to any light occupation. The dressing had been applied to twelve patients in the last six

or eight months. The dressing was employed in upwards of thirty cases and the results were good. There were two cases in which the results were not thoroughly satisfactory, but in these the reporter did not apply the dressing personally. One was an instance of Pott's fracture. The deformity was not greater than is often noticed after treatment by the fracture-box, but there should have been none. The other was one of compound fracture, for which the patient was operated on. The wound healed kindly at first, but later it broke down and the fracture was found to be ununited. The bone was then cut down upon, and a portion of the tibial shaft, about two inches, resected. A few days after the operation, as the operation wound was running a sterile course, Dr. Martin directed an ambulant dressing to be applied. The patient was up and walking five days after the operation, and he apparently did well, the bone uniting, although there was some deformity. Martin has never used the dressing for fractures of the bone above the knee, and, with the exception of the last case, all have been simple fractures.

The first patient was a boy who was run over by a bicycle, and both bones of the leg were broken at the middle third. There was no difficulty in replacing the bones in good position, and an ambulant dressing was put on a few days after the injury. After the plaster was applied there was no pain, and the patient has been walking ever since—that is seven weeks ago. There seemed to be less stiffening and after-trouble than is common when the fracture-box is employed. The boy has been very comfortable and has been saved a long confinement in bed. The first dressing applied broke, because of poor plaster, and a second one was put on about ten days later.

In the second patient, a boy, the first dressing was poor and a second had to be applied; the latter was worn for five weeks. The union is perfect and there is no disability.

The third case was one of fracture of both bones of the leg at the middle third, during a fight. The patient began walking the day after the application of the dressing. He came to the dispensary to be dressed, and was saved several weeks in bed.

The fourth case had a Pott's fracture; the patient began walking the next day, but had some pain.

The last case was in an old woman, who fell down stairs some three or four months before, breaking the upper third of the tibia and fibula. There was very little deformity, and the dressing was applied promptly. She had less use of the dressing than any patient that Dr. Martin has thus treated. She could not walk without a crutch or chair. Three weeks elapsed before she went home. She did not complain of pain, but seemed unable to manage the large, heavy dressing. The day following the application of the dressing—the second after her accident—Dr. Martin took her by the hand and led her up and down the ward, but the walking was not rapid or easy. Perhaps the best thing the dressing did for this patient was to shorten her stay in bed and allow her to go home and walk about one or two weeks sooner than she otherwise would have done. She presented absolutely no deformity; nor did any of the cases.

The cases presented were not selected by any means, and represented very nearly what can be expected from the dressing. The first proposition to treat fractures by the ambulant method was made by Bardeleben in 1894, and, following him, a number of Germen surgeons tried it. Bardeleben reported upwards of 111 cases. Some of his colleagues reported a number of others, so that the total number was 200. Since that time Dr. Martin has had upwards of thirty cases of his own.

The Germans apply the ambulant dressing not only for fractures of the leg, but also for simple and compound fractures of the thigh. The principle on which this dressing is applied is that of fixation and shifting of support. Given a fracture of one or both bones of the leg, as soon as the weight is thrown on the foot there is, of course, a tendency to overlapping of the bones. If the weight of the body could be carried from above the fracture to the ground by external supports, as by means of a plaster case passing from the knee-joint to below the sole of the foot, the tendency to overlapping would at once be corrected. If the weight of the body could be kept from causing overriding of the fragments, and at the same time the fragments fixed in good position, there seems to be no good reason why patient should not use his leg. This is accomplished by the so-called ambulant splint; the plaster is so applied that the weight of the body is carried from the tibial tuberosities just below the knee to the reinforced portion of the dressing lying below the sole of the foot, pressure upon the malleoli being avoided by abundant cotton padding. This dressing fixes both the joints

contiguous to the fracture. It is perhaps open to a serious objection, as it entirely prevents the use of massage. It is inapplicable to certain cases, *e.g.*, when there is great swelling, when the shape of the leg is such that the weight cannot be carried from the tibial tuberosities to the rigid dressing that envelops the leg (this is particularly the case in very fat women with small bones). In most instances of simple fracture of the leg, when reduction is possible, either with or without ether, and when the swelling is not marked, the dressing is the most satisfactory that can be used.

The dressing should be applied as soon after the fracture as possible; it requires abundant padding with some elastic material; it must be so arranged that the plaster does not press into the malleoli, and the plaster must be neatly fitted below the knee; it should be worn from four to six weeks. On the day following the application of the dressing, the patient is gotten up with the help of an assistant or a friend, who takes him under the arm and assists him in walking up and down the ward. The Germans use an apparatus very much like the walking device provided for children, the patient standing inside a sort of cage which is on wheels. In a day or so walking is possible with two crutches; in another day, with one crutch; and in a week the patient can usually get along with a cane or without any support. It is scarcely rational to apply this dressing to a hod-carrier and expect him to be able to continue his employment at once; but a man can attend to ordinary business pursuits.

Another advantage of the dressing is that less atrophy follows than after the use of the ordinary fracture-box or plaster dressing. The fracture-box is a poor dressing. Even if the patient is lying in bed the plaster is best. The atrophy is a manifestation of a reflex neurosis, as has been proved by experimental research. The great advantage inherent in the plaster dressing is that it enables the patient to be up and about (and every one realizes how irksome it is to stay in bed when it is not absolutely necessary), and may, perhaps, save these patients four or six weeks of lying on their back.

As to the direct method of applying the dressing: In the first place the plaster must be fresh, and that is often a very great trouble in plaster bandage—it is better made in a coarser mesh of gauze than that used for the ordinary surgical bandage; a lot of cotton batting should be provided; and the fracture must be reduced. A mistake is often made in not etherizing more frequently than is done in the treatment of fractures. The first essential is thorough reduction. When there is swelling and the patient is sensitive there is a great temptation to trust that reduction is accomplished without making this perfectly apparent. In the majority of cases ether should be administered in applying this plaster bandage. Ether should always be given when it is not absolutely certain that the bones are in proper position. The leg is then enveloped in a flannel roller, as is customary in the application of all plaster dressings; the cotton is wrapped about and then the plaster is applied. For the purpose of flanging out the lower part of the plaster and giving a little more strength, the reporter uses slightly flexible steel rods, such as are employed in orthopedic work for bracing shoes. They are flexible, so they can be molded to the desired shape. In putting on the dressing it is essential that the toes should point a little up; if they drag they are liable to strike things; the heel should be a little lower than the toes. A child of eight or ten years of age requires a flannel bandage two inches wide; the foot is covered in, no reverses being employed. In putting on the cotton batting it is well to tear it off the roll of the required width; it then rolls out very much like a bandage. The malleoli are thickly padded, so that the plaster may be prevented from falling in and pressing at these points. At the knee-joint where the plaster should bear pressure the padding is thinner. If the surgeon intends to take the plaster off himself it is well to partly cut it, and for that purpose a lead strip is needed. The sole of the foot is padded with a mass of cotton at least three inches thick. The plaster is now ready for application; the first two turns take in the padding on the sole and keep it in the middle line. In applying this bandage a little tighter pressure is employed than with an ordinary plaster bandage, as, because of the thick padding, the parts will stand it. When the patient is placed under the influence of ether, he must be kept under until the dressing is hard. The bandage runs up to a little above the knee. Having closed in the cotton the external metallic splints are applied; these are molded to the part and covered in with more plaster. The patient is kept perfectly quiet and the toe is held up until the plaster hardens. In another twenty-four hours the patient is allowed to put the foot to the ground.

While the plaster is still moist a knife is run along the line of lead strip, leaving several bridges, which should be marked by pencil before cutting. When the time comes to remove the plaster the bridge is simply cut through by a pen-knife and the dressing will spring off.

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### *SEVEN CASES OF PERFORATING GASTRIC ULCER TREATED BY OPERATION, WITH THREE RECOVERIES.*

Under this title a valuable paper appears in *The Lancet* of December 5, 1896, by ARTHUR E. BARKER. He says that among the most recent advances in abdominal surgery none is more interesting or more likely to yield good fruit than the operative treatment of perforating gastric ulcer. This hitherto terribly fatal accident is now shown to be well within the reach of surgery if taken in hand promptly; and there seems to be good reason to hope that as time goes on our achievements may be crowned by a success which as yet we can hardly estimate, for just as in the case of other intra-abdominal lesions the study *in vivo* by the operator has cleared up many pathological and clinical questions impossible of solution by those who only had an opportunity of examining regions and tissues after death, so may it be in the case of gastric ulcer.

The condition of the patients at the beginning of the operation varied. In the second case there was no shock and the color was very good, but the temperature was 102.2°, and the pulse 136 and intermittent; the abdomen was not markedly distended. In the first case there was not much shock; the temperature was 103.2°, the pulse 120, and the abdomen was not distended. The same was true at the time of operation in the third case, though the perforation produced shock. All of these recovered. In the fourth case, too, in which the patient lived fifteen days, there was not much shock although the temperature was 102°, the pulse 116, and the abdomen somewhat distended thirty-two hours after perforation. There was much collapse in the sixth case; the temperature was 99°, the pulse 140, and the abdomen generally distended twelve hours after perforation. Extreme collapse was also present in the fifth case, with the pulse 160 and the respiration 60, the abdomen being greatly distended all over, twenty-eight hours after perforation. Both of these cases died soon after operation. The three cases which recovered were operated on respectively at eight and a half, eighteen, and seven and a half hours after the accident; the other four at thirty-two, twenty-eight, twelve, and seven hours after.

In all seven cases the perforation was on the anterior stomach wall; the largest was only half an inch across. There was no evidence in any of a second perforation. The duration of the several operations was: In the first case, one hour and twenty-five minutes (recovered); in the second, just two hours (recovered); in the third, one hour and twenty-three minutes (recovered); in the fourth, one hour and a quarter; in the fifth, one hour and five minutes; in the sixth, one hour and a quarter; and in the seventh, one hour and twenty minutes. The last four died.

In regard to the operations themselves, they were carried out on the same lines except in the fourth case. Everything was done as quickly as possible; a median incision was made in all; in three a transverse cut through the left rectus muscle was added to this, the perforation being difficult to reach; in one an inguinal incision had been previously made which probably facilitated the cleansing of the pelvis very materially. In cleansing the peritoneal cavity dry sponging without flushing of any kind was employed in all; in doing this particular care was observed to carry the hand and sponge between the liver and diaphragm in order to wipe away lymph, fluid, and food. In his first case (Case 4) this point was omitted, with the result of a left subphrenic abscess. Taught by this, he was more careful in all the other cases and was surprised in each by the amount of matter which could lodge between the liver and the diaphragm. Round and behind the gall-bladder also required special cleansing, as well as the flanks and pelvis. There was no very special difficulty in carrying the hand into all these regions through the median incision. After a large experience of flushing the abdomen, he prefers dry sponging for this class of cases. A drainage-tube was inserted through a special hole in the flank in two cases, but in each appeared to do but little work, and he thinks now might have been dispensed with except in the third case, where a subphrenic abscess formed and had to be opened between the ribs. The anterior wound was drained with strands of iodoform gauze in four cases, and with the best results. One strand reached deeply between the liver and diaphragm on

each side, another to the suture in the stomach, and a fourth down behind the gall-bladder. They remained *in situ* until the fifth or sixth day, when there was always some difficulty in removing them. But he has been greatly impressed with their value; they drained well, and on removal the edges of the wound came together wonderfully. In the second case, the scar had all the appearance of one healed by first intention, without the least bulging. In no case was the ulcer cut out; the edges were simply folded well in and the closing silk stitches were deeply inserted in one or two rows by means of round sewing needles.

In the after-treatment great reliance was placed on feeding by the mouth. Small repeated doses of egg albumen and water, of brandy, beef-tea and chicken broth were begun as soon as the patient had recovered from the anesthetic. But besides this, peptonized suppositories were introduced into the rectum, alternating every two hours with five ounces of hot water.

From the experience gained in these cases he is inclined to think that success or failure depended in the first place upon the moment after perforation at which they were treated. In the next place the condition of the stomach contents which escaped among the intestines must have influenced the result. In the second and third cases the fluid found round the perforation was thin and without visible fragments of food; it was also slightly alkaline. The characters of the fluid in two other cases were the same to all appearance; one of these recovered and the other lived fifteen days. In the three remaining cases, where solid meals had been taken shortly before, large fragments of food (potatoes and greens) were present among the intestines and were producing much irritation, as evidenced by the presence of abundant lymph and dirty serum. Of course this produced much more profound shock and great distention. Whether in these two cases the abdomen could have been better cleansed by flushing is a question easily answered. Very voluminous and prolonged flushing would probably have done more in carrying away débris of food than simple sponging with the hand; but in the state in which these patients reached the operating-table they would not have tolerated any prolonged operation. As it was, one died of shock four hours after, where the operation only lasted sixty-five minutes. On the whole the writer formed the impression that dry sponging, as employed in all these cases, is preferable to flushing; but then it must be carried out with method.

In the worst of these cases where there was terrible shock before the operation, and in another case, the pulse and general condition improved greatly on the opening of the abdomen and the escape of the gas and fluid pent up under great pressure. This ought to encourage us to operate where collapse is present rather than wait on the chance of its subsidence. But it should also be noted that handling of the stomach produced violent vomiting, which only ceased when the chloroform was pressed. It was necessary to evacuate the stomach by pressure in all cases, and he thinks this is better done with the hand through the perforation than by washing out, which is tedious. As to the after-treatment in these cases the immediate feeding by the mouth appeared to be as beneficial as after other operations on the stomach. It is hard to imagine how this could be injurious at first, while the stitches hold; and the benefit in arousing the patient from collapse is a justification for running some risk. We should feel more anxious about mouth feeding after two or three days than at first, for then the stitches might be cutting. Of course, food and plenty of fluid must also be given by the rectum at the same time. Finally, the writer has been careful in the two cases which recovered to keep the patients for a long period in bed under strict treatment for the gastric ulcer; for though the perforation may soon be soldered up after stitching, there is good reason for believing that the gastric ulcer and the generally vicious condition of the digestion takes a long time to repair, as was evidenced in one of the author's cases.

In the two cases referred to the patients are still under observation. One is seen daily and appears now, four months after the operation, to be in excellent health; she is in service again and doing her work cheerfully and well. The first case was also quite well and in service when last heard of; the third case is still in hospital, but going on well more than a month after the operation.

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### *INJECTION OF IODINE IN SURGICAL TUBERCULOSIS.*

CAMPANINI (*Il Policlinico*, Oct. 1, 1896) gives several examples of the results of Durante's method of treatment in various cases of surgical tuberculosis. The author gives details of two cases of tuberculous joint disease—in one fifty-three injections,

some intra-articular and some intramuscular, were given; in the other forty-five injections were given. In each case a cure was effected. In tuberculous glands, especially if unassociated with a suppurative periadenitis, the iodine injections gave good results; two cases of tuberculous peritonitis were treated with decided advantage by the same method. In addition to the above the author also practiced Durante's method in two cases of lupus and one of tuberculous orchitis and epididymitis. Time alone can prove whether relapses occur with less frequency after the iodine treatment, but as far as he has tried it the author is strongly in favor of it in suitable cases.—*British Medical Journal*, Dec. 5, 1896.

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### *VESICO-INTESTINAL FISTULA TREATED BY TRANSVESICAL SUTURE.*

POUSSON (*L'Union Médicale*, No. 51, 1896) had a patient brought to him suffering from cystitis complicated by pneumonia. This latter symptom was attributed to ammoniacal fermentation and had lasted for three years; it was so pronounced that the patient was unable to use a public urinal. Finally fecal matter appeared mingled with the urine, thus rendering diagnosis absolute.

Endoscopic examination showed an ecchymotic spot, thus apparently locating the fistula. Hypogastric cystotomy was performed, but the opening was not found in the region of this spot of ecchymosis; the fistula was placed above the opening of the right ureter. The vesical edges were freshened and sutured. The immediate result was excellent, but on the third day gas passed by the urethra, and the following day some fecal matter escaped; this continued for six days, then gradually lessened and finally cure was accomplished.

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### *TREATMENT OF FRACTURES BY MASSAGE.*

FEVRIER (*Revue Médicale de l'Est*, 1896, 13, p. 385) states that as a result of massage in the treatment of fractures, there is immediate disappearance of pain, diminution of swelling, rapid restoration of function; quick formation of callus preceding the bony union, which is likely to be voluminous; free establishment of motion, and absence of muscular atrophy.

In carrying out the treatment the hands of the masseur should be surgically clean; the skin which is rubbed should be lubricated with sterile vaselin. The first day longitudinal rubbing is practiced, avoiding the seat of fracture; circular rubbing is indicated on the following days. The thumbs and the palms of the hands are not employed until the fourth or fifth day. Passive motion is practiced at the neighboring joints. The treatment should occupy about twenty minutes.

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### *SUCCESSFUL ABDOMINAL NEPHRECTOMY FOR RUPTURE OF THE KIDNEY.*

At a recent meeting of the Clinical Society of London, WALLIS (*Lancet*, October 31, 1896) reported the case of a man twenty-two years old, who had fallen from a ladder a distance of twelve feet upon a spiked railing. Though collapsed and evidently in pain, consciousness was not lost. The abdomen was rigid and rather distended. On examination it was found that one of the spikes, three inches in length, had pierced the abdominal wall nearly an inch below the tenth costal cartilage on the right side; the opening in the skin ran downward and inward, and the finger passed into the wound could be pushed on into the abdominal cavity. Soon after admission to the hospital the patient passed a pint of pure blood by the urethra. He was at once prepared for operation, and an incision made from the lower end of the punctured wound downward to the right semilunar line. A lacerated wound of the peritoneum came into view, through which the bruised intestines presented. The peritoneal wound was enlarged and large masses of blood-clots were turned out of the abdomen. Sponges were inserted and the sides of the abdominal wound held apart by two long silk ligatures. The under surfaces of the liver and the gall-bladder were exposed and found intact. The intestines in the track of the wound were bruised, and one piece of small intestine presented a tear in the external coats, through which the mucosa bulged. At the bottom of the cavity the kidney could be felt, torn almost in two; blood welled up through the wound at a great rate. The left kidney was found intact in its normal situation. The peritoneum was now divided along the outer edge of the ascending colon, and this portion of the gut pushed in toward the middle line; the left hand was passed in behind the colon, the kidney rapidly freed and brought out of the wound. The ureter was clamped, tied, and cut, the vessels were treated in the same way, and the kidney was removed. The deep muscles were considerably lacerated and bled freely. Sponges were temporarily

inserted and the abdominal cavity was washed out with saline solution. The wound was packed with iodoform gauze in strips, and dressed with cyanide gauze and blue wool, and bandaged. The patient was greatly collapsed after the operation, but reacted well during the following twenty-four hours. The wound healed without complication, and the ultimate recovery was perfect. For two days following the operation the urine contained blood, and for twelve days albumen. The quantity of urine passed in twenty-four hours averaged between forty and fifty ounces. It was pointed out that in the past rupture of the kidney had been attended with a mortality of thirty five per cent.—*Medical Record*, Dec. 19, 1896.

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### *CONTUSION OF THE BELLY FROM THE KICK OF A HORSE, FOLLOWED BY HEMATURIA, PERITONITIS AND SPONTANEOUS CURE.*

CAMUS (*Archives de Médecine et de Pharmacie Militaires*, No. 12, 1896) reports the case of a dragoon who was kicked in the left flank by a horse. The injury caused brief loss of consciousness followed by hematuria, vomiting, fever, meteorism, suppression of the liver dulness, extreme tenderness over the entire belly (most marked in the left flank and abdominal facies), and cyanosis, the pulse running on the fifth day to 120. Thereafter symptoms ameliorated and the patient recovered entirely.

As to treatment, the physician rejected from the first the aid of laparotomy; he applied leeches externally, and withheld food for several days, employing hypodermic injections of morphine with caffeine.

## Reviews.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. A Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine. Collected and Arranged with Critical Editorial Comments by a Large Staff of Collaborators under the General Editorial Charge of George M. Gould, M.D. Profusely Illustrated.
Philadelphia: W. B. Saunders, 1897.

We are told in the Preface to this second issue of the Year-book that the cordial reception given the Year-book of 1896 has stimulated the editors to renewed enthusiasm in the preparation of the present volume, and from an examination of the pages of the present issue we can readily see that the result of this stimulation has been an improvement upon the volume for 1896, good as that one was. Most of the collaborators in this volume were also collaborators in the volume for the preceding year, with the notable exception of Dr. Hardaway of St. Louis, whose place has been taken by Dr. L. A. Duhring, than whom no one has a higher reputation as a dermatologist.

In the brief space which we have at our command it will not be possible for us to mention the various authors who have brought aid to Dr. Gould in his undertaking; and an undertaking it must have been when we consider that this volume contains nearly 1300 pages of large size, and that its indexing requires no less than sixty-two pages. This index is more accurate than that of the earlier issue and is so full and complete that information which one seeks to obtain from the body of the book is easily found, an advantage which adds greatly to the value of any scientific work. From time to time as we read over the pages we notice interesting additions to the topics under consideration made by the collaborator, his advice or criticism being enclosed with editorial brackets. At the bottom of each page are copious and, so far as we can see, reliable and accurate references to the literature which has been utilized by the collaborator.

We bespeak for this book a most cordial reception by the profession, for any book which is so useful should be well received.

TWENTIETH CENTURY PRACTICE AND INTERNATIONAL ENCYCLOPÆDIA OF MEDICAL SCIENCES. Edited by Thos. L. Stedman, M.D. In 20 volumes. Volume X: Diseases of the Nervous System.
New York: William Wood & Co., 1897.

Volume X is published before Volume IX because the manuscripts for Volume IX were delayed. This volume is in all respects and general appearance identical with those which have preceded it, and deals entirely, as we have stated in giving the title, in the consideration of the Diseases of the Nervous System. Six authors contribute the 860 pages which are comprised in the book, namely: Sanger Brown of Chicago, Charles L. Dana of New York, Joseph Collins of New York, Charles S. Féré of Paris, Howell T. Pershing of Denver, and Bernard Sachs of New York.

The first article, upon Diseases of the Brain, is by Dr. Joseph Collins, who although one of the younger neurologists, is nevertheless qualified by experience at home and abroad to discuss the important topic which

has been assigned to him. The first sixty-four pages of his article are devoted to the discussion of the important subjects of the morphology and anatomy of the brain and cerebral localization, in which he gives us a good summary of the knowledge of these important matters, and then adds a bibliography which covers nearly five pages and refers to most of the best researches which have been made upon these subjects in this country and abroad. He then proceeds to a discussion of the various forms of encephalitis and brain abscess, paying considerable attention to the differential diagnosis and the treatment, and this and all his subsequent articles are added to in value by the copious bibliography which he gives us. He briefly considers the important subject of the infantile cerebral palsies, and illustrates his text by numerous illustrations of patients suffering from the diseases under consideration. He then discusses multiple sclerosis in its various forms, hydrocephalus and parasites of the brain, thrombosis of the dural sinuses, diseases of the cerebellum, and then proceeds to a consideration of lesions in the medulla oblongata, including the various forms of bulbar paralysis and associated neuritis of the bulbar nerves. His article covers 260 pages.

In the succeeding article Dr. Dana, in the short space of thirty-seven pages, considers Intracranial Hemorrhage, Embolism and Thrombosis, including Apoplexy and Hemiplegia. No bibliographies are added to fortify the statements made by the author, and it will be seen at a glance that in the brief space which we have named it has not been possible for Dr. Dana to consider, in as capable a manner as in the article which we have just quoted, the important topics which have been assigned to him and any one of which might with advantage have covered the total number of pages which we have named.

Dr. Sachs' article on Tumors of the Brain is fifty-four pages in length, including its bibliography of two pages, and is a first-rate summary of the subject of which it treats, for although it is not as exhaustive as one would expect to find in such a volume as the one before us, Dr. Sachs has a happy way of expressing himself which renders everything he writes readable.

The fourth article, upon Diseases of the Meninges, is also by Dr. Collins, and is as exhaustive and valuable as the first one we mentioned, covering over ninety pages.

The articles upon Hysteria and Epilepsy and Spasmodic Neuroses are by Féré of Paris, and while they are not particularly strong so far as the therapeutics are concerned, add very considerably to the value of the book.

The article upon Neurasthenia, which covers but twenty-four pages, is by Dr. Dana, and is also far shorter than we expected to find in so exhaustive a work, for surely this topic is one deserving of graphic description and requires much space for its proper consideration.

The next article is by Dr. Pershing of Denver, upon The Disorders of Speech, and gives an interesting summary of much that we know concerning the curious symptoms associated with aphasia and collateral subjects. It covers fifty pages.

The final article in the volume, upon Disorders of Sleep, by Dr. Sanger Brown, which covers thirty-three pages including its bibliography, might also have been considerably enlarged and the topics dwelt upon more fully with advantage.

With each succeeding volume our opinion of this magnificent undertaking, which we at first regarded with considerable suspicion as to its ultimate success, improves, and we find among our medical friends that the profession is becoming more and more impressed with the necessity of purchasing this series.

DISEASES OF INFANCY AND CHILDHOOD. For the Use of Students and Practitioners of Medicine. By L. Emmett Holt, A.M., M.D. Copiously illustrated. New York: D. Appleton & Co., 1897.

Dr. Holt has presented us with a large and exhaustive work on Pediatrics, one which because of its size and scope is qualified to lay claim to the position of representing the best and most recent views concerning this important part of medical study. It remains for us, therefore, to examine his pages with interest, to see whether he has so utilized the space at his disposal as to accomplish the object which he has placed before himself in the compilation of such a volume.

One of the first things that strikes us as we read the pages is the style. While we have no one reason for expressing this opinion, we venture to state that a very considerable portion, if not all, of the book has been dictated to a stenographer, since it lacks the smoothness and conciseness which comes of wielding the pen direct, and possesses the rather short and dogmatic sentences which one has recourse to in dictating. We have met with a number of books recently in which

it seemed to us that this criticism obtained, and we think it a matter of regret that authors when taking the time and trouble necessary for the gathering together of their facts should mar their completed work by the avoidance of the necessary manual labor.

It will not be possible of course to go over the book page by page. We think that those who are enthusiastic in the discussion of infant feeding will be quite well satisfied with the chapters upon the infant's Dietary and Nutrition. From first to last the most captious critic cannot find fault with the illustrations, many of which are original and nearly all of them very well executed. By far the worst illustration which we have met with in the book is one which is designed to show epithelial desquamation of the tongue, which looks more like a horse's skull than any other object with which we are acquainted, and which utterly fails to add anything to the clearness of the text. The very good illustration of gangrenous stomatitis makes up, however, for this defect; and the plate representing the various sizes and capacities of the stomach at different ages seems to us a very good one. A considerable number of the cuts we recognize as having been taken from Dr. Holt's article in Keating's Encyclopædia of Children's Diseases, and several plates are also taken from the same source, although the credit is not given in their legends. It is a matter of surprise that Dr. Holt has devoted only twenty-two pages to the Gastric Disorders of Infancy and Childhood, for certainly these disorders form a very large proportion of the cases which we meet with in practice. Thus the subject of gastric dilatation covers only one and a third pages. While it is true that this condition is not so frequently met with in children as in adults, it occurs with sufficient frequency to justify more exhaustive treatment.

Ulcer of the Stomach, which is a much more rare condition and almost invariably results from tuberculosis or the ingestion of poisons, covers about one page.

In the article upon Diseases of the Digestive System, in connection with the intestines, Dr. Holt states that the highest mortality from intussusception occurs in the first year, a fact which is, of course, universally recognized by those who have studied this matter statistically. The statement, however, that such a lesion is not a common one, seems to us hardly correct in view of the fact that according to the statistics of Leichtenstern and Bryant forty per cent. of all cases of intestinal obstruction are due to this cause. In the discussion of the statistics given by Dr. Holt the statement is not made as to whether they have been collected by himself or whether he has taken them bodily from some other author. If they have been collected by himself he has certainly not gone as exhaustively into the subject as would be possible, and from what he states in his text he has evidently relied almost entirely upon the statistics of Treves in his discussion of the subject. That the cases may be his own, however, seems to be indicated by the fact that he speaks of one of "my own cases" when discussing the total number of patients suffering from intussusception and the symptoms which they manifest.

In regard to the question of the termination of intussusception Dr. Holt states that the condition may be cured spontaneously by sloughing of the invaginated part, but that such a result is rare at all ages and is almost never seen in infancy. While it is correct to state that such cases rarely ever reach a cure it might have been well to add that sloughing of the invaginated portion of the intestine is by no means rare, and according to the researches of Leichtenstern, out of 408 cases 149 sloughed and 61 recovered. In the second edition of this book we think it would be well for Dr. Holt to include not only the statistics of Pilz, which were collected in 1870, but also those of Leichtenstern, Bryant, and those which will be found gathered together in the Fiske Fund Prize Essay of 1890 upon "Injuries and Obstruction of the Intestine."

The only other criticism of the book which we have is that the portions of it devoted to therapeutics are not as full as we think the general practitioner would like to have them. Aside from this, the remaining articles seem to us to be worthy of great praise.

It must not be thought from anything that we have said that this book is not worthy of the position which we named for it at the beginning of this review. Dr. Holt's wide clinical experience, the beautiful work which he did in connection with his article upon "Diseases of the Intestine" in Keating's Encyclopædia, and the numerous contributions which he has made to the literature of pediatrics, renders anything which he may write worthy of acceptance and respect by his professional brethren; and the book is to-day without doubt the best single volume and single author work upon Diseases of Children which is published in this country.

TWO HEALTH SEEKERS IN SOUTHERN CALIFORNIA. By William A. Edwards, M.D., and Beatrice Harraden.
Philadelphia: J. B. Lippincott Company, 1897.

This little book, the object of which is well described in its title, has been written by Dr. Edwards largely from a semi-medical point of view, and by Miss Harraden from a purely lay point of view, for the purpose of describing the advantages and beauties of Southern California as a health resort. It contains comparative temperature tables for San Diego and its neighborhood and the great cities of the United States, and will convey to the health seeker who is thinking of going to the Far West accurate and interesting information in pleasant text.

Miss Harraden, who is well known as the author of several contributions to literature, the most famous of which is "Ships that Pass in the Night," has written the first and fourth chapters, and Dr. Edwards has contributed the rest of the volume, which consists of eight chapters. The chapter by Miss Harraden on "Outdoor Life for Women" will be read with interest by invalids of the gentler sex.

The book is dedicated to Dr. George E. de Schweinitz, of Philadelphia.

ANOMALIES AND CURIOSITIES OF MEDICINE. By George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D.
Philadelphia: W. B. Saunders, 1897.

This large volume of nearly one thousand pages, including the index, is another monument to the extraordinary literary industry of Dr. Gould, its chief compiler, whose previous literary works we have had occasion to review a number of times in the THERAPEUTIC GAZETTE. It is composed of eighteen chapters, which deal with Genetic Anomalies, Pre-Natal Anomalies, Obstetric Anomalies, Prolificity, Major Terata, Minor Terata, Anomalies of Stature and Development, Longevity, Physiological and Functional Anomalies, Surgical Anomalies of the Head and Neck, of the Extremities, of the Thorax and Abdomen, of the Genito-urinary System, Miscellaneous Anomalies, Anomalous Instances of Disease, of Skin Disease, Anomalous Nervous and Mental Diseases, and Historic Epidemics. There is scarcely a page in this volume that does not contain in addition to its copious text and illustrations a large number of references, varying from two or three to twenty or more. A careful examination of the volume reveals the fact that Drs. Gould and Pyle must have devoted an enormous amount of time and literary research to its production, but we cannot avoid a feeling of regret that so much literary ability and the exercise of the power to analyze medical literature should not have resulted in the production of a book of more value in the alleviation of disease. An accumulation of statements concerning and pictures representing bearded women, monstrosities in the way of flesh and wasting, and of cases of perverted sexual and other functions is not, we think, a particularly edifying addition to medical literature, and very few if any of the cases cited will aid materially in the diagnosis of unusual forms of disease. Certainly a picture of a tattooed man is not a medical curiosity, and we do not see any use in describing a case in which some students, presumably during a drunken frolic, inserted a pig's tail into the rectum of a prostitute. We notice that a number of illustrations in this volume have been very properly taken from other well known works, as for example some of the pictures of malignant growths from the American Text-book of Surgery. With Dr. Gould's never-ceasing industry we look forward to the production of other volumes from his pen which, like his Classical Dictionary, will reflect more credit than this one upon his literary ability and medical experience. To those, however, who are fond of studying subjects such as are discussed in this volume, we can cordially recommend it as being—what it professes to be—the most exhaustive and accurate summary of medical curiosities to be found in any language.

A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD FOR DIAGNOSTIC PURPOSES. By Richard C. Cabot, M.D.
New York: William Wood & Co., 1897.

Those who were engaged in microscopical work in connection with clinical medicine fifteen or twenty years ago would hardly have believed at that time that a useful and not overwrought book of over 400 pages could be contributed, at this time, upon the clinical examination of the blood; and yet Dr. Cabot, whose work on the examination of the blood is well recognized as being first-class, has succeeded in presenting us with an accurate summary of his investigations and those of many other observers in this volume. To a large extent it consists of a record of his own examinations of the blood and of the examinations which have been made by a number of personal friends.

In regard to the myelocytes of Ehrlich, Dr. Cabot tells us on page 55 that they are peculiar to certain diseases and are occasional

visitors to the blood on the border-land between pathological and physiological states. But on page 144, in the discussion of leukemia, he says that myelocytes are exceedingly numerous, and very properly emphasizes the view that they are of marked diagnostic importance in the study of this disease in its spleno-medullary form. While these two statements are not directly contradictory it seems to us that his first statement if true is a little too sweeping. The plates, of which there are a number, are by Funke of Leipsic, and while very good, are hardly up to the standard which he set for himself in the plates which he made for Thayer and Hewetson in their well known monograph upon Malarial Fever.

The book apparently does not attempt to present a careful analysis and summary of the results which have been reached so far by hematologists, although their work is referred to constantly, but it seems to reflect rather the opinions and experiences of the actively engaged blood examiner. Credit is given by the author to a large number of first-rate monographs which have been published abroad and in this country by other investigators. A copious bibliography, in which some of the text-books which consider the blood are discussed, closes a volume which should be in the hands of every one engaged in clinical medicine.

Dr. Cabot dedicates this volume, the first exhaustive one written upon the blood in this country, to Dr. William Sidney Thayer, of Johns Hopkins University.

A Text-book Upon the Pathogenic Bacteria for Students of Medicine and Physicians. By Joseph McFarland, M.D. With 113 illustrations.
Philadelphia: W. B. Saunders, 1896.

The author states in his Preface that his book is "intended to convey to the reader a concise account of the technical procedures necessary in the study of bacteriology, a brief description of the life-history of the important pathogenic bacteria, and sufficient description of the pathological lesions accompanying the micro-organismal invasions to give an idea of the origin of symptoms and the causes of death."

Only such bacteria as have been proven to be pathogenic by the lesions or toxins they engender have been described, the method of distinguishing such micro-organisms from others which are non-pathogenic being given as fully as is practicable. It may be said that McFarland has succeeded in producing a text-book which can be particularly commended for the clearness of its writing and the directness of its teaching.

The illustrations are admirable and ample. There is no book of its class which will be found as thoroughly satisfactory to practitioners and students as this.

Leprosy and the Charity of the Church. By the Rev. L. W. Mulhane.
New York and Chicago: D. H. McBride, 1897.

This is a little brochure on the subject which is given on its title-page, with pictures of lepers, of the chapels which have been built for them to worship in, of the missionaries who are working in that field and of those who, having contracted the disease, have passed away. To those who are interested in leprosy or missionary endeavor for the benefit of these subjects of a horrible disease, the volume cannot fail to be of very great interest; and while it is not a distinctly medical work, there are enough medical facts in it to make it of some value to the practitioner.

Autoscopy of the Larynx and Trachea: or Direct Examination Without a Mirror. By Alfred Kirstein, M.D., Berlin. Translated by Max Thorner, A.M., M.D.
Philadelphia: The F. A. Davis Publishing Company, 1897.

We are told on the title-page that this little book after its translation has been still further revised by its German author. Its design is to describe a method by which physicians may examine the larynx and trachea without the use of the ordinary laryngoscope. After the perusal of its pages we are inclined to think that while the descriptions which it gives are perfectly possible of application, physicians will continue to use the laryngoscope quite as frequently as before. It is, however, an interesting contribution in that it describes what may be done by skilful technique.

## Correspondence.

### *LONDON LETTER.*

By St. Clair Thomson, M.D., M.R.C.P., F.R.C.S.

Death is still busy among the leaders of our profession, and not a month—hardly a week—passes without the record of the departure of one of the epoch-makers of medicine in the Victorian age. Now I have to record the death of Sir Spencer Wells, full of years and honors. His name is known throughout the world of abdominal surgery,

and will always be associated with the history of ovariotomy. It is difficult to realize now-a-days the opposition he met with, and strange to read that in his first publications he had always to introduce the names of those present at his operation as a guarantee of authenticity. For when other arguments failed his opponents fell back on asserting that his descriptions of cases were falsified, and his record of results manipulated. He began life as a surgeon in the Royal Navy, and he was nearly forty years of age before he started work in London. When success did come it came with a rush, though indeed he had worked hard and strenuously to win it. He was in later years a great traveler, and his hale and cheerful appearance will be missed at many a medical gathering and at the autumn congresses.

I referred just now to the Victorian age. Next June the Queen will have reigned sixty years—the longest period in the history of this country for one monarch to sit on the throne. The event will of course be celebrated, but up to the present moment the Queen has resisted giving her consent to any one particular scheme to mark the event. Now however she has consented, indirectly, to allow the hospitals of London to gain the chief benefit of the celebration, by sanctioning an appeal in their favor from the Prince of Wales. This appeal is intended to reach many of those who have hitherto not subscribed to these great metropolitan charities, and so it is hoped that the large number of subscribers will compensate for the smallness of their donations. It is also intended that this fund will form a regular source of income for the London hospitals. It is satisfactory to note that in his appeal to the public the Prince has not overlooked "the fact that apart from the purely philanthropic work carried on in relief of the sick poor, we look to the voluntary hospitals for the means of medical education and the advancement of medical science."

It is curious that concentration of public attention on the hospitals should coincide with the work of the Hospital Reform Association, and with the suggestion of a Central Hospital Board for London. All three movements appear at the present moment to be in active progress, and there is good hope that in their several ways they will greatly benefit our hospitals, our schools, the public, and the profession.

Several successful cases have been published lately where ruptured gastric ulcer has been treated by laparotomy, suture, and washing out of the peritoneum. The moment of rupture is generally well marked, and it has been found that the average duration of life after the occurrence is only twenty-four hours. Apart from the technical success of the operation, the most important factor is the promptitude with which the operation is undertaken. Once the diagnosis of rupture has been made every minute's delay rapidly diminishes the chance of success of the operation.

Some recent researches with regard to the presence of typhoid bacilli in the urine have possibly, if confirmed, great practical importance. From these researches it would appear that examination of the urine is of little value for diagnostic purposes, since the bacilli only occurred in it, when they did so occur, late in the disease; but the urine was often, though not in all cases, a serious source of infection, and should so be reckoned with. In one instance the bacilli persisted in the urine for twenty-two days after the temperature had fallen to normal.

If any one is interested to know what antiseptics have done for the lying-in woman, I would commend to his notice an address published in *The Lancet* of January 23. He will then not be surprised that the late Matthews Duncan dedicated his chief work to Joseph Lister as the man who had done more than any obstetrician to save life in childbirth.

We have had still another case in the law courts which may serve as a moral to medical men. A physician attended a child for what he considered to be "malignant sore throat." The child became seriously ill, and in their anxiety the parents suggested a consultation. To this the family attendant—an old friend—readily agreed, but before the consultant arrived the child died. On hearing from the parents an account of the illness the consultant said that the case must have been one of diphtheria. It was this unbalanced remark—for under the circumstances it could not be considered more than a mere guess—which led to the subsequent trouble. For two other children in the same family fell ill with diphtheria, and the father brought an action against his family attendant to recover the expenses he had been put to in connection with their illness, which he attributed to defendant's neglect in not enforcing suitable precautions from contagion on the occasion of the fatal illness of the first child. The defendant won his case by establishing that

the first case was one of malignant sore throat, and that he had in any case taken proper precautions in the way of isolation, etc. It was the hasty and ill-considered remark of the consultant, as the judge pointed out, which originated this painful case. It shows once again that none of us should hazard an opinion with regard to a case we have not ourselves observed, and that it is impossible to rediagnose a case when the case is over.

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## *PARIS LETTER.*

By A. R. Turner, M.D. (Paris).

It may be said that the most well known physician in France at the present moment is Dr. Philippe Grenier, deputy of the Department of the Doubs. He is but thirty-two years old, and studied and graduated in medicine some years ago in Paris. Returning to his native town of Pontarlier he established himself in practice.

Some time afterwards Dr. Grenier declared that his studies of the Koran had brought him to the belief that Mohammedanism was the true religion. He consequently adopted not only the faith but the religious customs and even the external costume of the Arabs. Such conduct did not excite much comment in Pontarlier, a small town, where both Dr. Grenier and his family had long been known and esteemed for their honorable position.

It happened, however, that at the last election for deputy from the electoral district of Pontarlier Dr. Grenier presented himself as a candidate, and was elected. He sits on the left side of the Chamber of Deputies, and may be looked upon as half Socialist, half Radical, and in reality forming a party by himself.

Not only was interest in him aroused by the fact that a Mohammedan had been elected to the Chamber of Deputies, but by the exact fashion in which he carried out the principles of his new belief with reference to daily prayers and ablutions. Wherever he may be, in the Chamber of Deputies or in the streets of Paris, he goes through the required prayers when the hour has come.

The Chamber of Deputies in Paris is situated immediately opposite the river Seine. As a number of deputies had objected to the ablutions required by the Mohammedan law being performed in the dressing-rooms reserved for their use, Dr. Grenier would descend, when necessary, to the border of the Seine and there carry them out, protected from the larger crowd who would at once assemble, and who were even waiting for him, by a body of police.

Lately, however, a permanent official of the Chamber of Deputies, disgusted that a deputy should thus become the daily spectacle of Paris, offered the use of his residence in the Chamber to Dr. Grenier.

The costume which Dr. Grenier wears consists of a long Arab cloak and turban, worn over the usual European dress. In this he follows the custom of a former deputy, who having promised his electors to always appear in a blouse at the Chamber of Deputies, wore it over a frock coat.

Many of Dr. Grenier's political ideas are socialistic; others belong to him more especially as a Mohammedan. Thus he wishes to have all Mohammedans of Algeria and Tunisia declared French citizens, with all the rights of voting. His signature is: Doctor Philippe Grenier, Prophet of God.

Public opinion in France has been much excited over the possibility of the introduction of the plague into France from Bombay. All goods coming from the infected regions are now allowed to enter only at certain ports, where disinfection can be carried out. Recently a steamer running regularly between Paris and London was stopped below Paris, as on its manifest were borne several articles which originally came from the East. Though they had left India long before the presence there of any symptoms of plague, disinfection was insisted upon.

The population of Marseilles and its municipal government were even more excited than the remainder of France on account of the arrival direct from Bombay of two English steamers. Fears of a popular tumult were expressed in case they were allowed to land their cargoes. Telegrams were exchanged between Paris and Marseilles; the mayor of the latter city was writing letters of protestation, until finally the Central Government gave orders that the two boats should not be allowed to discharge their cargoes.

In connection with all this comic incidents occur. Some few days ago there arrived at the Swiss frontier, at Chiasso, in the train from Milan to Bâle, an Englishman locked into a sealed railway carriage. He was a traveler from Bombay who had landed at Brindisi. The station-master at Chiasso telegraphed for instructions to Berne, but obtaining no answer in time, returned the railway carriage to Milan, without allowing the passenger to leave it. The latter, it is reported, took the

affair very coolly, and gazed with a complacent air on the people outside, not seeming to suffer much from the plague-microbes he was supposed to carry with him. Finally, from later information, it seems that the passenger was eventually allowed to resume his journey for London.

Even were the plague to reach European countries, if treated with the serum manufactured at the Pasteur Institute the mortality should not be great.

At Amoy Dr. Yersin treated twenty-three cases by injections of serum, only two deaths occurring — one five hours and the other twenty-four hours after the injection. One of the two mortal cases was injected only on the fifth day of the disease, and the other was exceedingly serious. As the previous mortality in plague had been about eighty per cent. it may be said that the treatment by the serum was as successful as the treatment of diphtheria by antidiphtheritic serum.

The Pasteur Institute has at present about twenty horses immunized against the plague and ready to give serum.

A French writer, Dr. Leloutre, has recently given a method of self-ophthalmoscopy which may interest some. It may easily be carried out, according to the author, by means of an ophthalmoscope, a mirror, a lamp, and a lens.

A wardrobe with a mirror in the door, so often found in France, is the best to employ. Place yourself in front of the open door of the wardrobe, about twenty to thirty centimeters before the mirror, and at its edge. If you wish to examine the right eye place the lamp so that the light from it may be prevented by the mirror from striking the right side of the face. Hold the ophthalmoscope to the left eye, place the lens before the right eye, and throw the light upon the mirror in such a way that it will be reflected back upon the lens and into the fundus. The rest is only a matter of changing the position slightly until the desired result is obtained.

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### *ABSTRACTS FROM OBSERVATIONS MADE IN A DIPHTHERIA OUTBREAK.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: This outbreak occurred in November, 1896, in a country town in the northern part of Maine. It was my first battle with the disease, and it was my misfortune to lose two patients before its nature was recognized, as it presented itself in these cases in the form of suppurative tonsillitis, with distinct formation and discharge of pus, which gave relief of all symptoms. There was no appearance of membrane upon either tonsils or uvula.

The patients were a lady thirty years of age and her daughter of about ten years. Both died of apparent sudden heart-failure, the mother's death occurring about six hours before that of her daughter, although she had not been sick as long as the latter.

The mode of death aroused my suspicion of malignant disease, and I called a consultant, but we were unable to make certain diagnosis until called to examine a throat in a neighboring family. This throat cleared up all doubts, as there was a distinct membrane already forming.

There was prompt quarantine of all affected and exposed, but only one other case developed that could possibly have come from that exposure.

Later two other cases appeared outside of quarantine, which also began with suppurative tonsillitis, but soon the membrane distinctly appeared, and with prompt isolation there was no spread of the disease.

Some two weeks afterward I was sent by the Board of Health to examine two families, and found both affected with diphtheria. Being large families there were consequently a number of cases.

No deaths occurred under my care after the disease was recognized, and all made good recoveries.

In every case I used antitoxin with excellent results and no bad effects. In nearly every case the membrane had separated within thirty-six hours after the first injection. A second injection was used only when there was not a distinct reaction within twelve hours.

I have used peroxide of hydrogen locally in the throat, and have given strychnine in heroic doses from beginning of disease and continued it through convalescence.

Without antitoxin I would be at a loss to treat a case of diphtheria satisfactorily, but with it I feel that I am using an absolute specific; for since November, 1896, I have seen and treated in this and surrounding towns twenty-seven cases without a death. I attribute the recovery in so many cases to the use of antitoxin. One of my fellow practitioners has not used antitoxin, and he has lost three cases out of seven treated.

As yet I have seen no bad effects from antitoxin, and I would recommend its use in all cases, whether seen early or late.

F. H. BADGER, M.D.

RANGELEY, MAINE.